

ADF&G TECHNICAL DATA REPORT NO. 28  
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STATE OF ALASKA  
Jay S. Hammond, Governor



PACIFIC HERRING (Clupea pallasii) HARVEST STATISTICS AND  
A SUMMARY OF HYDROACOUSTICAL SURVEYS CONDUCTED IN  
SOUTHEASTERN ALASKA DURING THE FALL, WINTER AND SPRING  
OF 1975-1976

By:  
Dennis Blankenbeckler

1976

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ALASKA DEPARTMENT OF FISH AND GAME  
Support Building, Juneau, Alaska 99801

James W. Brooks  
Commissioner

## ADF&G TECHNICAL DATA REPORTS

This series of reports is designed to facilitate prompt reporting of data from studies conducted by the Alaska Department of Fish and Game, especially studies which may be of direct and immediate interest to scientists of other agencies.

The primary purpose of these reports is presentation of data. Description of programs and data collection methods is included only to the extent required for interpretation of the data. Analysis is generally limited to that necessary for clarification of data collection methods and interpretation of the basic data. No attempt is made in these reports to present analysis of the data relative to its ultimate or intended use.

Data presented in these reports is intended to be final, however, some revisions may occasionally be necessary. Minor revision will be made via errata sheets. Major revisions will be made in the form of revised reports.

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By

Dennis Blankenbeckler  
Alaska Department of Fish and Game  
Division of Commercial Fisheries  
Ketchikan, Alaska

## INTRODUCTION

This report discusses the harvest statistics and hydroacoustical surveys conducted on Pacific herring, Clupea pallasii, in Southeastern Alaska during the 1975-76 season. Statistical fishing areas are shown in Figure 1.

## HARVEST

Approximately  $15.5 \times 10^6$  pounds of herring were landed for sac roe and bait in Southeastern Alaska with an approximate value to the fishermen of 1 million dollars. Sac roe herring are valued at approximately four times the bait herring. A total of  $11 \times 10^6$  pounds were landed as bait and  $4.8 \times 10^6$  pounds were landed for sac roe. A summary of Southeastern Alaska herring harvests are summarized in Table 1.

Southeastern Alaska herring fisheries are managed on a quota basis by emergency regulations for separate distinct stocks. The quotas are based on harvesting a percentage (10-20%) of each major stock from data on total biomass available and age and growth analysis. Biomass estimates, quotas and harvest data are summarized for bait and sac roe areas in Tables 2 and 3.

Forty-three purse seiners, 40 set gillnetters and 3 herring pounds participated in the herring fishery.

The bait fishery is harvested by purse seines and herring pounds. Herring pounds are regulated under a permit system with quotas set by the Board of Fisheries. The sac roe fishery is harvested by purse seines and set gillnets.

For the 1975-76 herring season the Board of Fisheries passed regulations which provided for separate set gillnet and purse seine roe areas.

Set gillnet roe regulations included:

1. Legal length limit of 200 fathoms in aggregate with no single net longer than 50 fathoms.
2. Minimum mesh size of 2-1/8" stretch mesh.
3. Anchor required, both ends buoyed and marked.

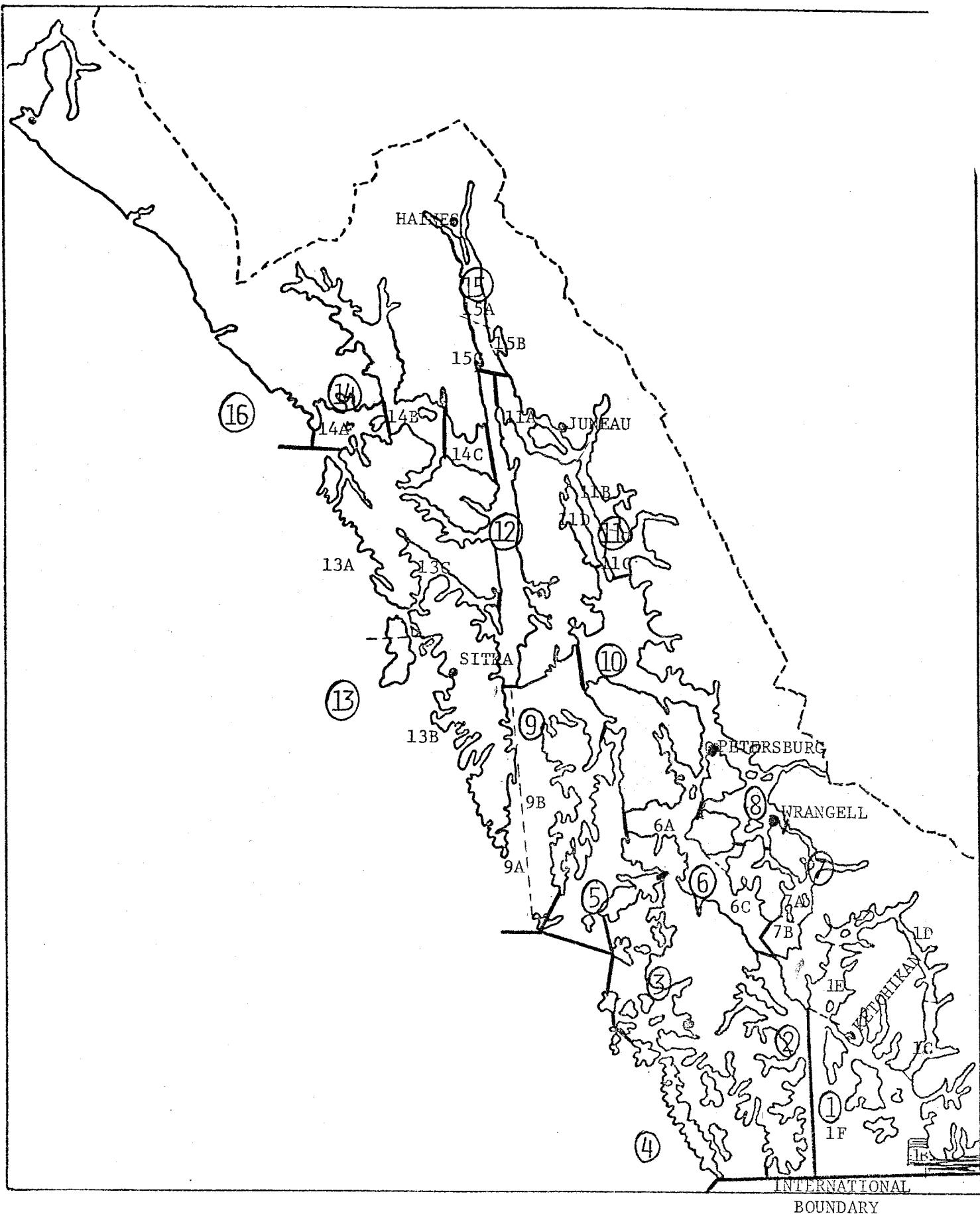


Figure 1. Statistical fishing areas - Southeastern Alaska.

Table 1. Southeastern Alaska herring catches in pounds x 1000, 1900-1975.

<u>Year</u> <sup>1/</sup>	Total Catch	Year	Total Catch
1900	2,388	1941	12,460
1901	2,500	1942	7,382
1902	1,624	1943	12,470
1903	2,988	1944	33,602
1904	3,042	1945	48,252
1905	2,618	1946	75,128
1906	2,010	1947	83,658
1907	2,764	1948	32,250
1908	3,422	1949	28,558
1909	2,150	1950	26,822
1910	13,734	1951	21,304
1911	24,114	1952	32,040
1912	32,134	1953	24,870
1913	26,992	1954	12,892
1914	16,636	1955	22,736
1915	13,928	1956	45,638
1916	22,388	1957	49,490
1917	24,890	1958	77,594
1918	35,650	1959	99,732
1919	21,924	1960	77,812
1920	32,904	1961	49,418
1921	12,024	1962	33,874
1922	33,900	1963	31,212
1923	42,480	1964	46,698
1924	58,790	1965	24,318
1925	115,564	1966	10,680
1926	147,686	1967	6,050
1927	90,620	1968	3,632
1928	106,014	1969	7,364
1929	157,498	1970	6,648
1930	141,710	1971	5,984
1931	89,714	1972	9,498
1932	99,572	1973	11,773
1933	123,176	1974	16,242
1934	133,684	1975	15,540
1935	116,310		
1936	73,426		
1937	100,668		
1938	44,712		
1939	40,056		
1940	6,274		

1/ Catch would include total season although referenced as only one year.  
 Example: 1975 year would include 1975-76 seasons catch.

Table 2. Summary of bait and food herring fisheries in Southeastern Alaska,  
1975-76.

Fishing district	Area	Biomass estimate $10^6$ lbs.	Quota in % of biomass estimate	Harvest $10^6$ lbs.	% of biomass estimate harvested
1	George Inlet	2.9	10-20%	.90	31
	Tongass Narrows	1.3	-	.52	40
	Bold Island 1/	-	-	.07	-
	Tamgass Harbor 1/	-	-	.04	-
	Port Chester 1/	-	-	.10	-
	Ham Island 1/	-	-	.09	-
	Behm Narrows	-	-	.08	-
2	Kasaan Bay	4.1	-	.33	8
3	Boca de Finas	14.8	-	.55	3
	El Capitan	1.0	-	.15	15
	Holbrook Inlet	-	-	.08	-
	Edna Bay	-	-	.60	-
	Tuxekan	-	-	.50	-
6	Scow Bay	4.2	-	.35	8
7	Deer Island	5.8	-	1.40	24
	Anita Bay	16.1	-	2.30	14
9	Port Camden	3.3	-	.90	27
10	Port Houghton	-	-	.10	-
12	Tenakee Inlet	-	-	.12	-
13	Lisianski Inlet	4.7	10%	.40	8
	Portlock Harbor	-	10-20%	.50	
14	Port Althup	-	-	.32	-
	Idaho Inlet	-	-	.10	-
	Cross Sound	-	-	.42	-
	TOTAL	58.2		10.82	Ave. 18

1/ Annette Island Reservation landings.

Table 3. Summary of sac roe herring fisheries in Southeastern Alaska, 1975-76.

Fishing district	Area	Biomass estimate $10^6$ lbs.	Quota $10^6$ lbs.	Harvest $10^6$ lbs.	% of estimate harvested	% roe recovery	Gear type 1/
1	Boca de Quadra	4.0 2/	.80	.85	20	14.2	SG
	Helm Bay	-	.05	.05	-	-	SG
	Annette Island Reservation 3/	3.8	.60	.27	7	-	PS-50% SG-50%
2	Kasaan Bay	4.1	.15	.21	5	14.5	SG
10	Pybus	-	.05	.04	-	-	SG
	Gambier	-	.05	.02	-	-	SG
	Farragut Bay	-	.20	.10	-	-	Pound
11A	Auke Bay (north)	10.8 3/	.90	.90	8	10.3	PS
	Auke Bay (south)	10.8 3/	.30	-	-	-	SG
	Tee Harbor	10.8 3/	.12	.01	-	-	Pound
	Indian Cove	10.8 3/	.12	.14	-	-	Pound
11D	Seymour Canal	4.0 4/	.40	.50	10	13.1	PS
12	Chiak	-	.30	.08	-	-	SG
	Freshwater	-	-	-	-	-	-
13B	Sitka Sound	14.6	1.60	1.60	10	13.7	PS
15A	Chilkoot Inlet	-	-	-	-	-	SG
15B	Berners Bay	10.8 3/	.35	-	-	-	PS
15C	Eagle River	10.8 3/	.95	-	-	-	PS
TOTAL		41.3	6.50	4.77 Ave.11		13.1	

1/ SG - set gillnet  
PS - purse seine

2/ Biomass by visual estimates from echograms.

3/ Biomass estimate of  $10.8 \cdot 10^6$  lbs.  
is the total amount of herring available in fishing districts 11A, 15B and 15C.

4/ Annette Island Reservation managed by Bureau of Indian Affairs under advisement of U.S.F.W.S. Biomass estimate made by ADF&G.

SG=1.38  
or 29%  
PS=12.4

PS=3.14  
or 66%

Pound=  
.25 or 5%

Purse seine roe regulations included:

1. Legal length limit of 200 fathoms.
2. Mesh depth limit of 1,700 (approximately 30 fathoms).
3. Purse seine considered to have ceased fishing when all rings were removed from the water.

The 1976 roe season marked the first year that significant catches of gillnet herring were harvested. In previous years gillnets were legal gear but could not compete successfully with the purse seines. A total of  $4.77 \times 10^6$  pounds of roe herring were harvested in 1976 in Southeastern. Gillnets accounted for  $1.38 \times 10^6$  pounds (29%), purse seines  $3.14 \times 10^6$  pounds (66%), and herring pounds for 5% of the harvest. Recovery rates for gillnet herring were 14.3% compared to 12.4% for purse seine. Gillnet success varied considerably from area to area. The Boca de Quadra fishery lasted 8 hours with 4 hours allowed to retrieve the gear. The catch for 40 gillnetters was 424 tons or 10.6 tons/boat or 1.32 tons/boat/hour. Composition of males, numbers of spawn-outs and the catch rate varied considerably from area to area.

#### HYDROACOUSTICAL SURVEYS

Hydroacoustical survey results are summarized in Table 4 and individual surveys are described in Appendix Table 1. Acoustical equipment and computer analysis are described by Nunnallee 1974, and Moberly and Thorne 1974. Operation and calibration of equipment is described by Mattie 1975.

Side scanning sonar was employed as part of the searching effort for the first time on all research vessels. Side scanning was especially valuable in locating schools of herring prior to spawning when fish are in tight, dense schools near the surface.

Concentrations of herring are located by using the presence of sea birds and sea mammals as biological indicators. Close monitoring of the fishing fleet also provides information on location of the herring concentrations.

Once a general area is determined searching is conducted with the side scanning sonar and standard echo sounder to set up a survey area for assessment. Transects are then run systematically over the established survey area. The survey area and transect lines are referenced to bottom contour and/or radar plotted points.

Table 4. Summary of herring computer hydroacoustical estimates made in South-eastern Alaska during 1975-76.

Date	Location	Computer Ave.			Surveyed Area m <sup>2</sup>	Biomass 1) 10 <sup>6</sup> lbs	Adjusted biomass estimates 2)
		Survey number	Vessel	Density lbs/m <sup>2</sup>			
10-8-75	Deer Island	1	Auklet	2.3	2,100,816	5.8	
10-10-75	Anita Bay	1	Auklet	5.6	2,400,933	13.3	
10-11-75	Scow Bay	1	Auklet	.927	4,555,337	4.2	
10-13-75	Pt. Camden	1	Auklet	.54	6,068,291	3.3	
11-7-75	George Inlet	1	Kittiwake	.259	846,758	.22	.37
11-7-75	George Inlet	2	Kittiwake	.168	846,758	.14	.23
11-17-75	Tongass Narrows	1	Auklet	1.0	996,816	1.0	
11-17-75	Tongass Narrows	2	Auklet	.34	996,816	.3	
11-19-75	George Inlet	1	Auklet	5.06	428,738	2.2	
11-19-75	George Inlet	2	Auklet	5.04	428,738	2.2	
11-21-75	Deer Island	1	Kittiwake	.282	3,301,283	.93	1.5
11-21-75	Deer Island	2	Kittiwake	.326	3,301,283	1.1	1.8
11-22-75	Anita Bay	1	Kittiwake	.953	7,202,798	6.9	11.5
11-22-75	Anita Bay	2	Kittiwake	1.197	7,202,798	8.6	14.3
12-11-75	Stag Bay	1	Kittiwake			2.8	4.7
12-11-75	Stag Bay	2	Kittiwake			.18	.3
12-11-75	Stag Bay	3	Kittiwake			.37	.61
12-16-75	Katlian Bay	1	Kittiwake	1.07	3,322,719	3.6	6.0
12-17-75	Anita Bay	1	Sundance	NOT ANALYZABLE			
12-17-75	Anita Bay	2	Sundance	"	"		
12-18-75	Deer Island	1	Sundance	"	"		
12-18-75	Deer Island	2	Sundance	"	"		
12-18-75	Deer Island	3	Sundance	"	"		
1-9-76	George Inlet	1	Sundance	"	"		
1-22-76	Fritz Cove	1	Cobb	1.8	4,373,127	7.9	
1-22-76	Fritz Cove	2	Cobb	2.2	3,376,311	7.4	
1-25-76	Katlian Bay	1	Kittiwake	.6	4,823,303	2.9	4.8
1-27-76	Katlian Bay	1	Kittiwake	.2	5,252,040	1.1	1.8
1-29-76	Scow Bay	1	Auklet				
2-5-76	Auke Bay	1	Kittiwake	3.6	2,529,554	9.1	
2-5-76	Bocas de Finas	1	Cobb	NOT ANALYZABLE			
2-5-76	Bocas de Finas	2	Cobb	.64	15,606,063	10.0	
2-6-76	Bocas de Finas	1	Cobb	1.46	10,064,124	14.7	
2-6-76	El Capitan	1	Cobb	.32	2,036,505	.7	
2-12-76	Kassan Bay	1	Sundance	1.1	2,829,670	3.1	
2-12-76	Kassan Bay	2	Sundance	1.4	2,829,670	4.0	
2-12-76	Katlian Bay	1	Kittiwake	.9	4,608,934	4.1	
2-12-76	Katlian Bay	2	Kittiwake	1.1	4,608,934	5.1	
2-27-76	Katlian Bay	1	Kittiwake	1.26	4,073,011	5.1	
3-17-76	Kassan Bay	1	Sundance	.10	1,339,806	.1	
3-17-76	Kassan Bay	2	Sundance	.12	1,822,136	.2	
3-31-76	Old Sitka Rocks	1	Kittiwake	2.44	6,002,332	14.6	
4-1-76	Old Sitka Rocks	1	Kittiwake	1.2	6,002,332	7.2	
4-7-76	Old Sitka Rocks	1	Auklet	1.0	7,631,536	7.6	

continued.....

Table 4. continued

Date	Location	Survey number	Vessel	Computer Ave.		Surveyed Area m <sup>2</sup>	Biomass 10 <sup>6</sup> lbs	Adjusted biomass estimates <sup>2)</sup>
				Density lbs/m <sup>2</sup>	Ave.			
3-25-76	Nak. - Katlian	1	Kittiwake	.75		7,610,099	5.7	
3-27-76	Cascade Inlet	1	Auklet	2.0		1,886,447	3.8	
3-26-76	Katlian Bay	1	Kittiwake	1.47		900,349	1.3	
3-26-76	Katlian Bay	2	Kittiwake	5.7		1,457,709	8.3	
4-7-76	Lynn Canal	1	NMFS vessel	1.46		4,480,000	6.5	
4-12-76	Lynn Canal	1	NMFS vessel	2.42		4,480,000	10.8	
4-14-76	Lynn Canal	1	NMFS vessel	6.70		568,077	3.8	
4-19-76	Lynn Canal	1	NMFS vessel	1.90		4,480,000	8.5	

1) Biomass computed by computer digital data analysis system under contract with the Fisheries Research Institute, University of Washington.

2) Adjustments made to the Kittiwake data after faulty resistor was found by Bob Mattie on 1-29-76. The faulty resistor was causing the transmit pulse to vary as much as two-fold which in turn would effect biomass estimates. Further checks revealed that the resistor was putting out only half power 75% of the time. With the assumption the resistor was malfunctioning constantly from 11-4-75 until 1-29-76 the data can be adjusted. The effect would be a loss of .2 decibels or biomass estimates being 66% low.

Surveys are conducted on a periodic basis from October 1 through June. The intensity of the survey is determined by the distribution of the herring. The fast diel movement of herring to the surface and shoreward limit the time fish are available for an accurate survey. Herring can be surveyed once off the bottom and until they approach the surface. This may be only a matter of 1 to 2 hours in certain areas. The best surveys are usually those conducted prior to dusk.

As many surveys as possible are conducted while the fish are schooled in a vulnerable distribution. To obtain more than one accurate survey it may be necessary to spend several days in one area.

Species identification is determined from the shape and distribution of the school on the echogram, trawling, behavior of the fish and monitoring of on-going commercial fisheries. Transect areas and the shape and distribution of herring schools are illustrated in Figures 2, 3, 4, and 5.

Location of herring concentrations and the setting up of the survey at an optimum time are crucial. Considerable effort in searching is required before an accurate assessment can be made.

Analysis of data to compute biomass is conducted under contract by the Fisheries Research Institute, University of Washington, using a computer digital data analysis system and on limited occasions by gross estimates from echograms by an experienced observer.

#### ACKNOWLEDGMENTS

The author wishes to express thanks to Tom Copeland and the Commercial Fisheries Division management biologists in Southeastern Alaska for assistance in collection of the hydroacoustical data. Thanks is also extended to the crews of the research vessels KITTIWAKE, AUKLET, SUNDANCE, JOHN COBB and SEARCHER for collection of acoustical data and to Gary Gunstrom and Sharon Peterson for assistance in preparation of this report. Thanks is also extended to the National Marine Fisheries Service, Auke Bay Laboratory, in collection of hydroacoustical data by their staff provided under a cooperative agreement between the agencies.

TRIPLE LINE INDICATES TURN, AREA BETWEEN REFERS TO ONE LEG OF THE TRANSECT PATTERN RAN AT CONSTANT SPEED.

一  
九三

NUMBER IS A REFERENCE TO TAPE RECORDER FOR LATER COMPUTER ANALYSIS.

123

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HERRING SCHOOL  
PILENG TYPE  
(characteristic  
herring school  
shape)

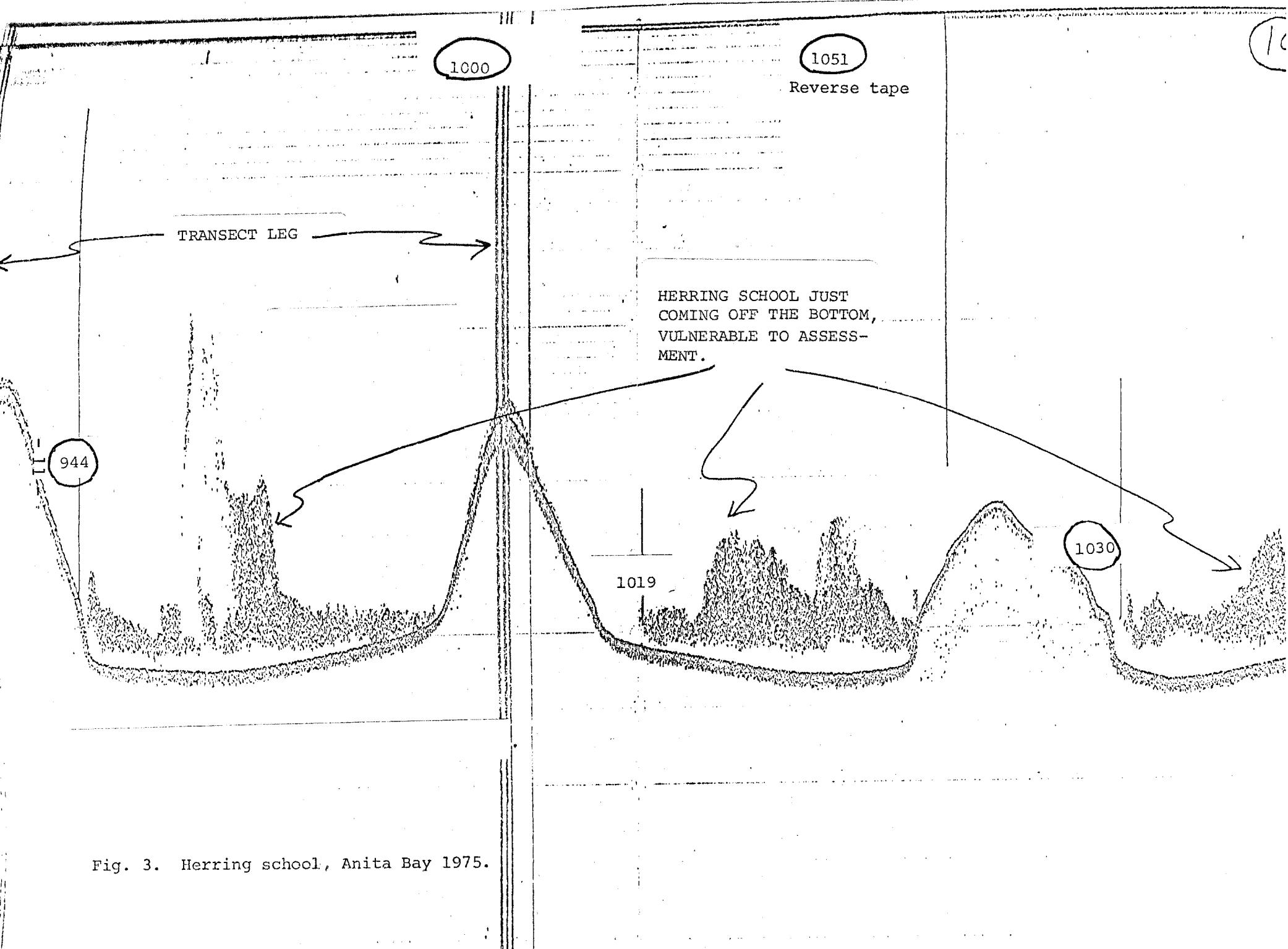
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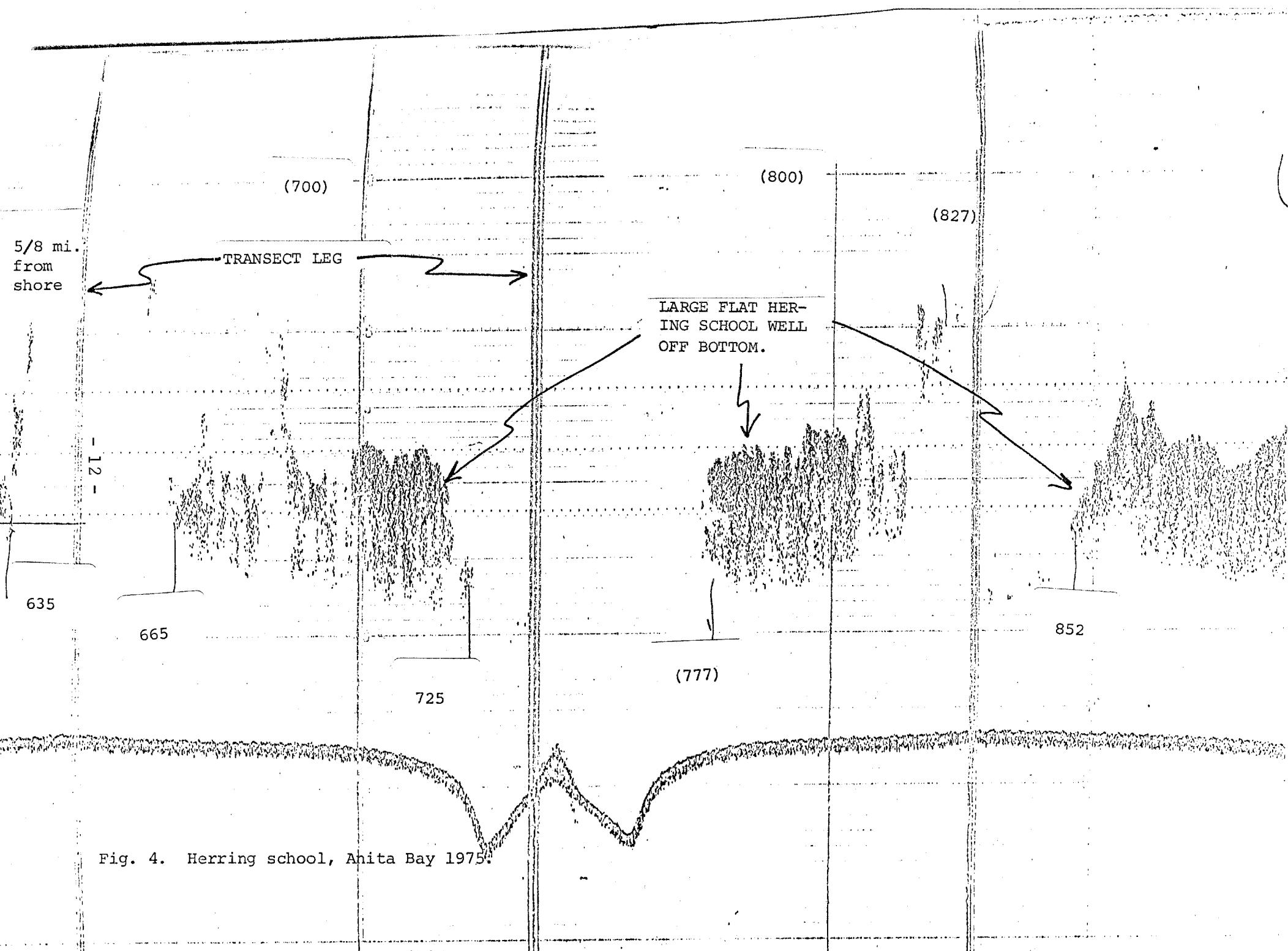
HERRING SCHOOL

**TOP CONTOUR**

DEPTH IN FATHOMS

Fig. 2. Herring school, Sitka Sound 1975.





300

400

500

SPIKE. PILING  
TYPE HERRING  
SCHOOLS WELL OFF  
THE BOTTOM

Fig. 5. Herring schools, Katlian Bay, 1976.

#### LITERATURE CITED

Nunnallee, E.P., Jr. 1974. A hydroacoustical data acquisition and digital data analysis system for the assessment of fish stock abundance. Division of Marine Resources, U. of W. WSG 74-2, 48 pp.

Mattie, R.R. 1975. Instructions for calibrating and operating acoustical equipment for herring assessment. Applied Physics Laboratory, U. of W.

Moberly, S.A. and R.E. Thorne. 1974. Assessment of Southeastern Alaska herring stocks using hydroacoustical techniques, 1970-72. ADF&G Info. Leaflet No. 165. 24 pp.

APPENDIX

AREA SURVEYED Cascade Inlet RUN # 1 VESSEL AUKLET DATE 3-27-76

OPERATOR Copeland WEATHER CONDITIONS Clear and cool. light S.E. wind.

TIDAL INFORMATION : High level 13.9' Time 1143 hours SURFACE TEMP. 39

Low level -- Time -- hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE 220 VPP

SYNC PULSE / - / TVG GAIN - 50 ms - 100 ms - 200 ms -

DIAL & SETTINGS CORRECT POSITION / X / CALIBRATION OSC. SETTING 500 mv

TEAC CALIBRATED / X / LEFT VOICE CHANNEL CHECK / X /

CHECK OSC AGAINST ROSS DEPTH / X / RED RECORD LIGHT ON / X /

TAPE DATA:

PULSE LENGTH	long	PAPER SPEED	4	GAIN SETTINGS	7 & 5
ATTENUATION	-12 db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED	5 knots constant				

GENERAL INFORMATION:		TAPE INDEX:	START	00	STOP	23
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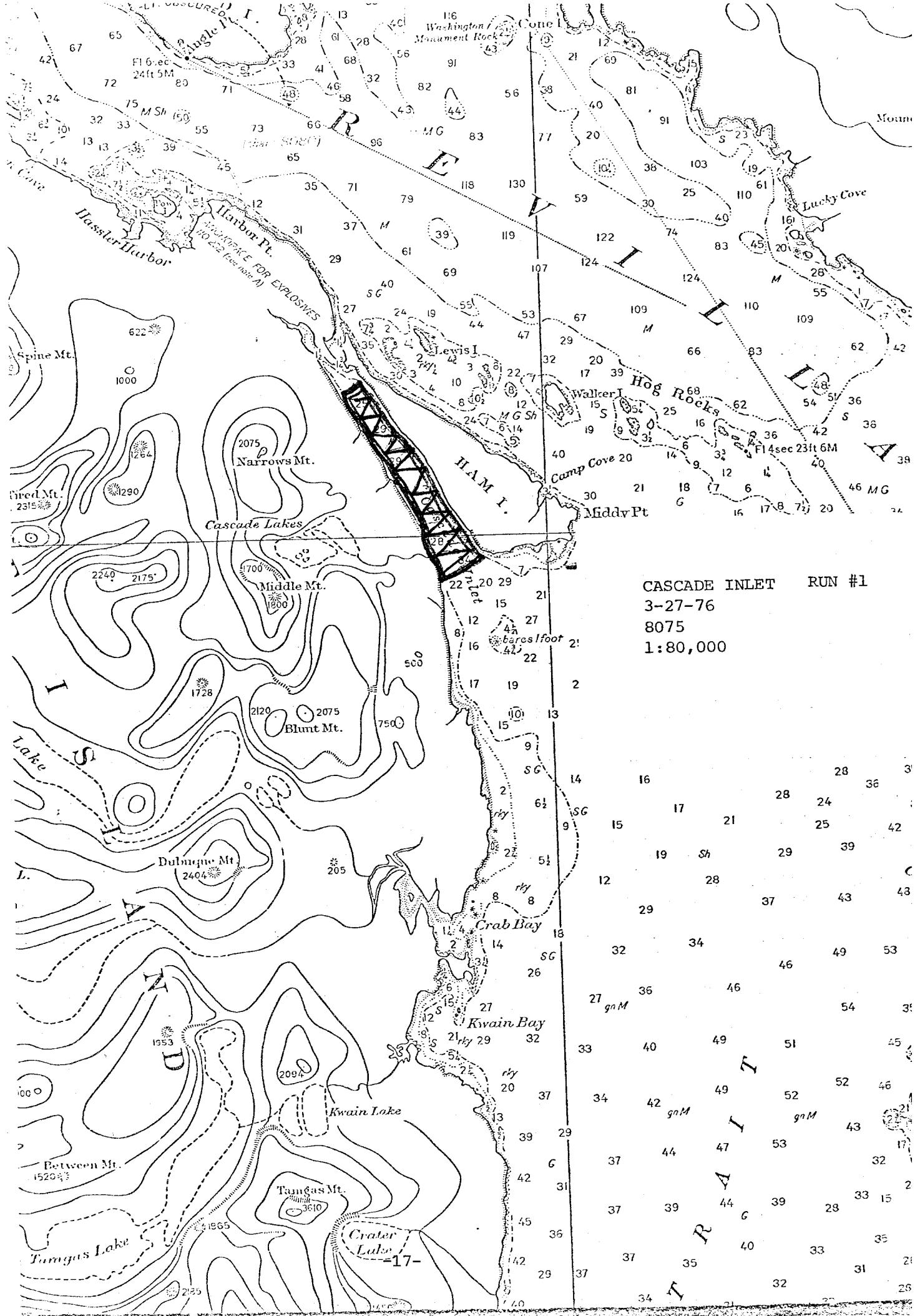
CALIBRATION TONE PRIOR TO SURVEY:		GAIN	7	START	23	STOP	62
		GAIN	5	START	62	STOP	98
		GAIN		START		STOP	

TAPING GAIN	5	REEL NO.	1	START	130	TAPE		STOP	992
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	

START RUN #	1	START	1925	STOP	2005	TOTAL	40 minutes
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY:		GAIN	5	START	992	STOP	1008
		GAIN	7	START	1008	STOP	1022
		GAIN		START		STOP	
		GAIN		START		STOP	

COMMENTS: This area was searched about 1 1/2 hours before taping. Very light sticks were noted in area, also about 20 sealions. Area was taped starting at west end taping to the east. Herring schools layed along S.W. shore of Ham Island. Herring schools were laying at about 15 fathoms during taping.



AREA SURVEYED TONGASS NARROWS RUN # 1 & 2 VESSEL AUKLET DATE 11-17-75  
 OPERATOR Blankenbeckler & Copeland WEATHER CONDITIONS Clear and calm.  
 TIDAL INFORMATION : High level  Time  hours SURFACE TEMP.   
Low level .5 Time 1849 hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE  TRANSMIT PULSE   
 SYNC PULSE / TVG GAIN  50 ms  100 ms  200 ms   
 DIAL & SETTINGS CORRECT POSITION / CALIBRATION OSC. SETTING   
 TEAC CALIBRATED / LEFT VOICE CHANNEL CHECK /  
 CHECK OSC AGAINST ROSS DEPTH /

TAPE DATA:

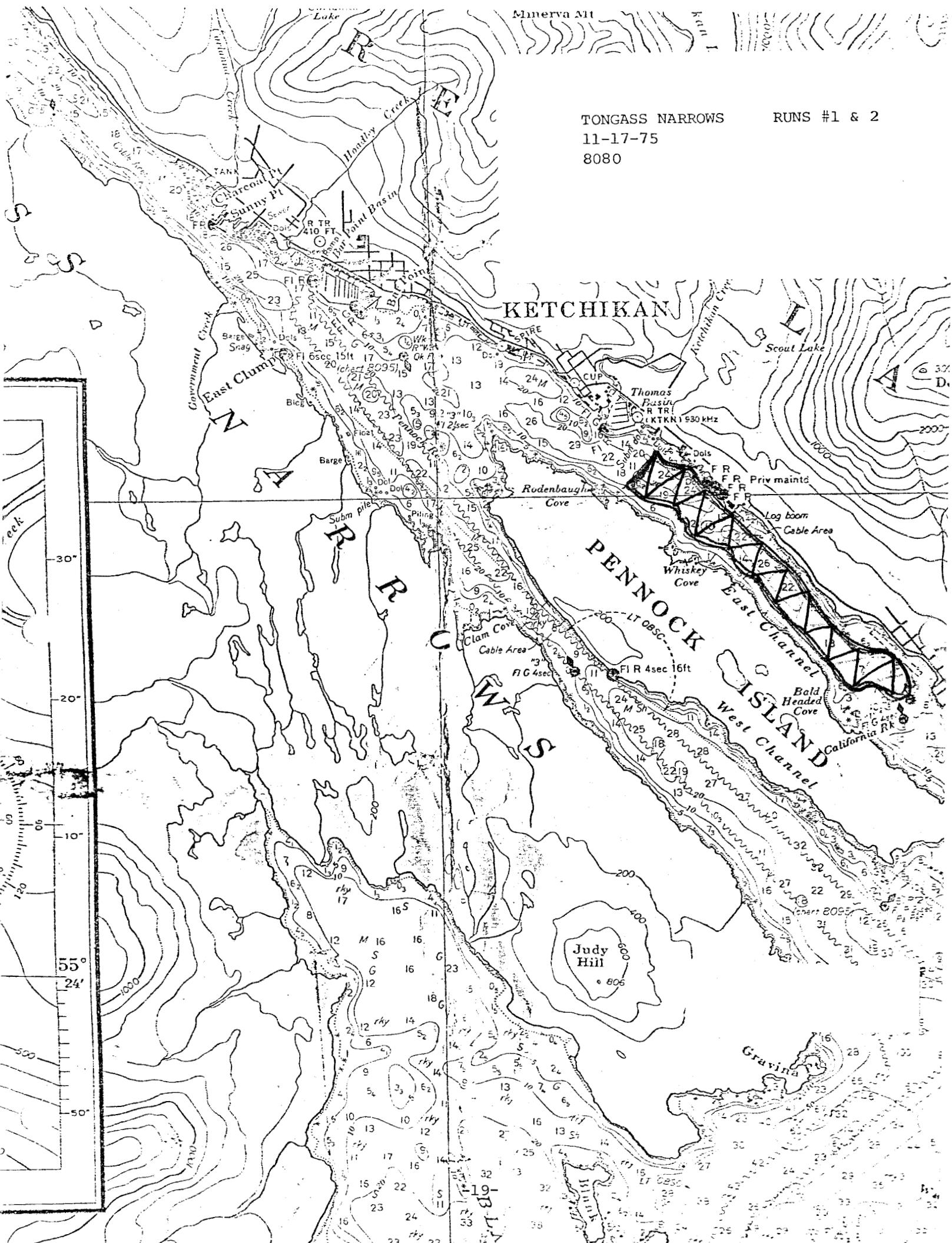
PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	5
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED					

GENERAL INFORMATION:		TAPE INDEX:	START	0000	STOP	0014		
CALIBRATION TONE PRIOR TO SURVEY:		GAIN	8	START	0014	STOP	0056	
		GAIN	5	START	0056	STOP	0095	
		GAIN		START		STOP		
		RUN		REVERSE				
TAPING GAIN	REEL NO.	1	START	0095	TAPE		STOP	0760
TAPING GAIN	XREEL NO.	2	START	0760	R.TAPE	1062	STOP	0095
TAPING GAIN	REEL NO.		START		R.TAPE		STOP	
TAPING GAIN	REEL NO.		START		R.TAPE		STOP	
TAPING GAIN	REEL NO.		START		R.TAPE		STOP	
START RUN #	1	START	1513	STOP	1540	TOTAL	27 minutes	
#	2	START	1555	STOP	1630	TOTAL	35 minutes	
#		START		STOP		TOTAL		
#		START		STOP		TOTAL		

CALIBRATION TONE AFTER SURVEY:		GAIN	8	START	772	STOP	752
		GAIN	5	START	752	STOP	731
		GAIN		START		STOP	
		GAIN		START		STOP	

COMMENTS:

Calibration at end of run. Large school 5-20 fathom depth and several smaller schools.



AREA SURVEYED GEORGE INLET RUN # 1 & 2 VESSEL KITTIWAKE DATE 11-7-75

OPERATOR Blankenbeckler & Copeland WEATHER CONDITIONS Rain, light N.E. wind.

TIDAL INFORMATION : High level X Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_  
Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_

SYNC PULSE / TVG GAIN 50 ms 100 ms 200 ms

DIAL & SETTINGS CORRECT POSITION / CALIBRATION OSC. SETTING \_\_\_\_\_

TEAC CALIBRATED / LEFT VOICE CHANNEL CHECK /

CHECK OSC AGAINST ROSS DEPTH /

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	5
ATTENUATION	-12db	TAPE SPEED	$7\frac{1}{2}$	BRAND TAPE	Scotch 209
VESSEL SPEED _____					

GENERAL INFORMATION:	TAPE INDEX:	START	0000	STOP	0036
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CALIBRATION TONE PRIOR TO SURVEY:		GAIN	5	START	0036	STOP	0076
		GAIN	8	START	0078	STOP	0114
		GAIN		START		STOP	

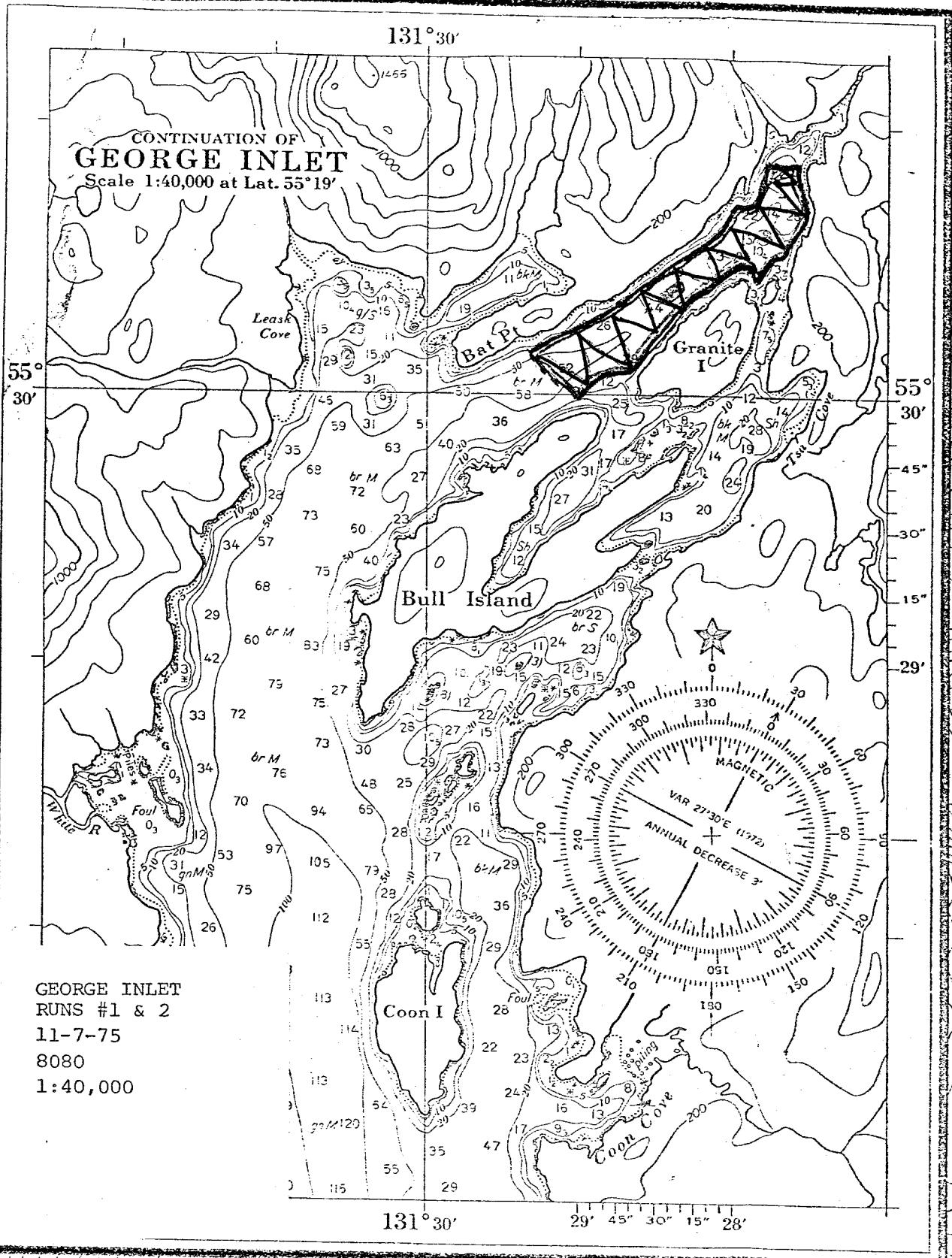
		RUN		REVERSE	
TAPING GAIN	8	REEL NO.	1	TAPE	STOP
TAPING GAIN	5	REEL NO.	1	R.TAPE	STOP
TAPING GAIN	5	REEL NO.	2	R.TAPE	STOP
TAPING GAIN		REEL NO.		R.TAPE	STOP
TAPING GAIN		REEL NO.		R.TAPE	STOP

START	RUN #	1	START	1432	STOP	1602	TOTAL	90 minutes
#			START		STOP		TOTAL	
#			START		STOP		TOTAL	
#			START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY:		GAIN	5	START	0243	STOP	0212
		GAIN	8	START	0212	STOP	0180
		GAIN		START		STOP	
		GAIN		START		STOP	

COMMENTS:

Voice recorded at 1022 stating second part of run. Herring laying off bottom in small flat school 35-45 fathom depth. Fish moved shoreward and shallow in run #2.



GEORGE INLET  
RUNS #1 & 2  
11-7-75  
8080  
1:40,000

AREA SURVEYED GEORGE INLET RUN # 1 & 2 VESSEL AUKLET DATE 11-19-75  
 (Bat Point)  
 OPERATOR Blankenbeckler & Copeland WEATHER CONDITIONS Calm & clear.  
 TIDAL INFORMATION : High level \_\_\_\_\_ Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_  
 Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_  
 SYNC PULSE  TVG GAIN 50 ms 100 ms 200 ms  
 DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_  
 TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
 CHECK OSC AGAINST ROSS DEPTH

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	5
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED					

GENERAL INFORMATION:		TAPE INDEX:	START <u>0117</u>	STOP <u>0127</u>
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CALIBRATION TONE PRIOR TO SURVEY:		GAIN	START	STOP
		GAIN	START	STOP
		GAIN	START	STOP

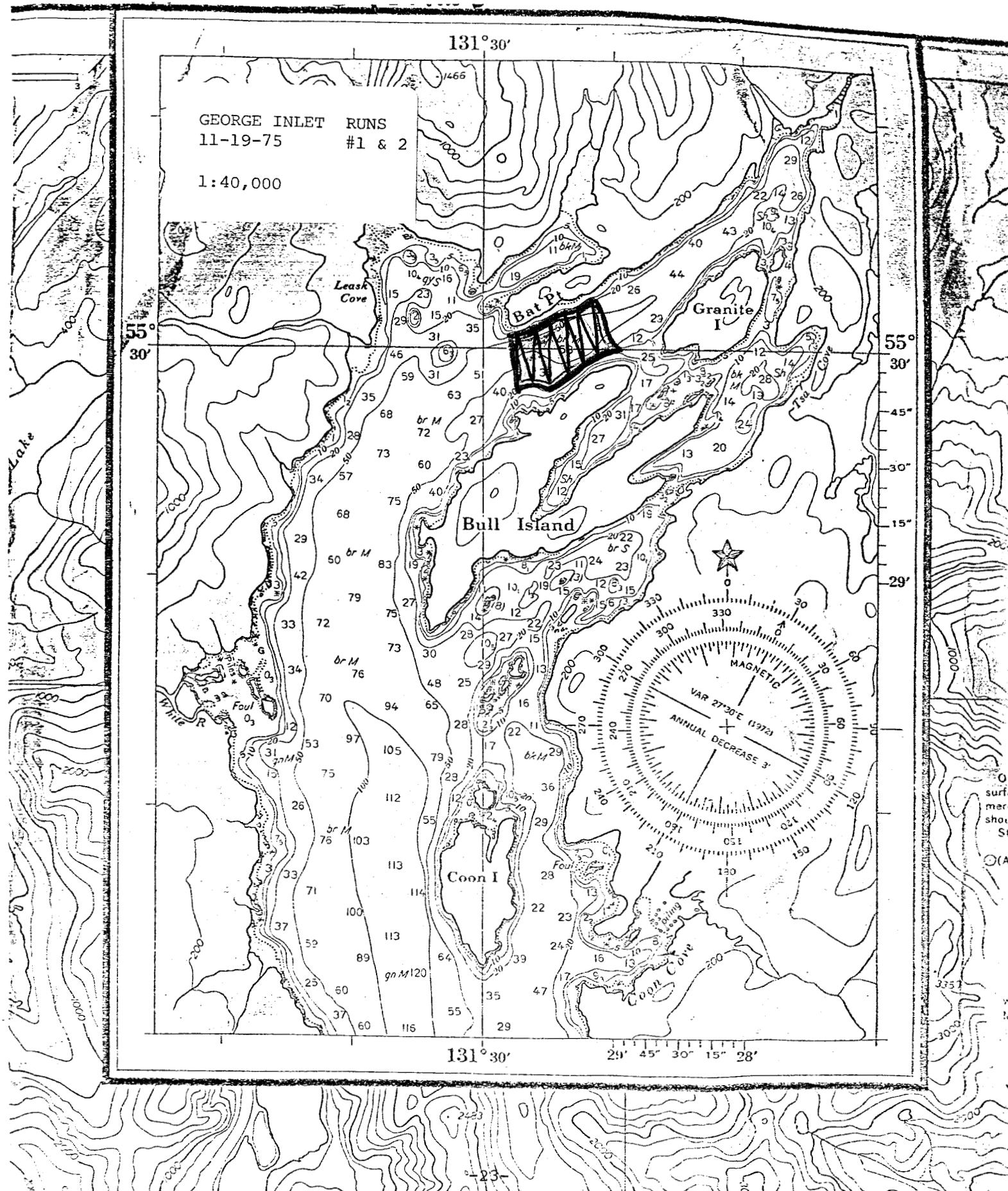
TAPING GAIN	5	REEL NO.	START <u>0140</u>	TAPE <u>--</u>	STOP <u>0627</u>
TAPING GAIN		REEL NO.	START <u>0627</u>	R.TAPE <u>--</u>	STOP <u>0892</u>
TAPING GAIN		REEL NO.	START	R.TAPE	STOP
TAPING GAIN		REEL NO.	START	R.TAPE	STOP
TAPING GAIN		REEL NO.	START	R.TAPE	STOP

START RUN #	1	START <u>1555</u>	STOP <u>1612</u>	TOTAL <u>17 minutes</u>
#	2	START <u>1612</u>	STOP <u>1627</u>	TOTAL <u>15 minutes</u>
#		START	STOP	TOTAL
#		START	STOP	TOTAL

CALIBRATION TONE AFTER SURVEY:		GAIN <u>8</u>	START <u>893</u>	STOP <u>910</u>
		GAIN <u>5</u>	START <u>910</u>	STOP <u>926</u>
		GAIN	START	STOP
		GAIN	START	STOP

COMMENTS:

Herring distributed in large piling type school at 35-50 fathom depth.



AREA SURVEYED WHITE RIVER (GEO. IN.) RUN # 1 VESSEL SUNDANCE DATE 1-9-76

OPERATOR Blankenbeckler WEATHER CONDITIONS Light snow, light northerly wind.

TIDAL INFORMATION : High level X Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_

Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_

SYNC PULSE / TVG GAIN 50 ms 100 ms 200 ms

DIAL & SETTINGS CORRECT POSITION / CALIBRATION OSC. SETTING 500 mv.

TEAC CALIBRATED / LEFT VOICE CHANNEL CHECK /

CHECK OSC AGAINST ROSS DEPTH /

TAPE DATA:

PULSE LENGTH	long	PAPER SPEED	4	GAIN SETTINGS	2
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED					

GENERAL INFORMATION:	TAPE INDEX:	START	0000	STOP	0026
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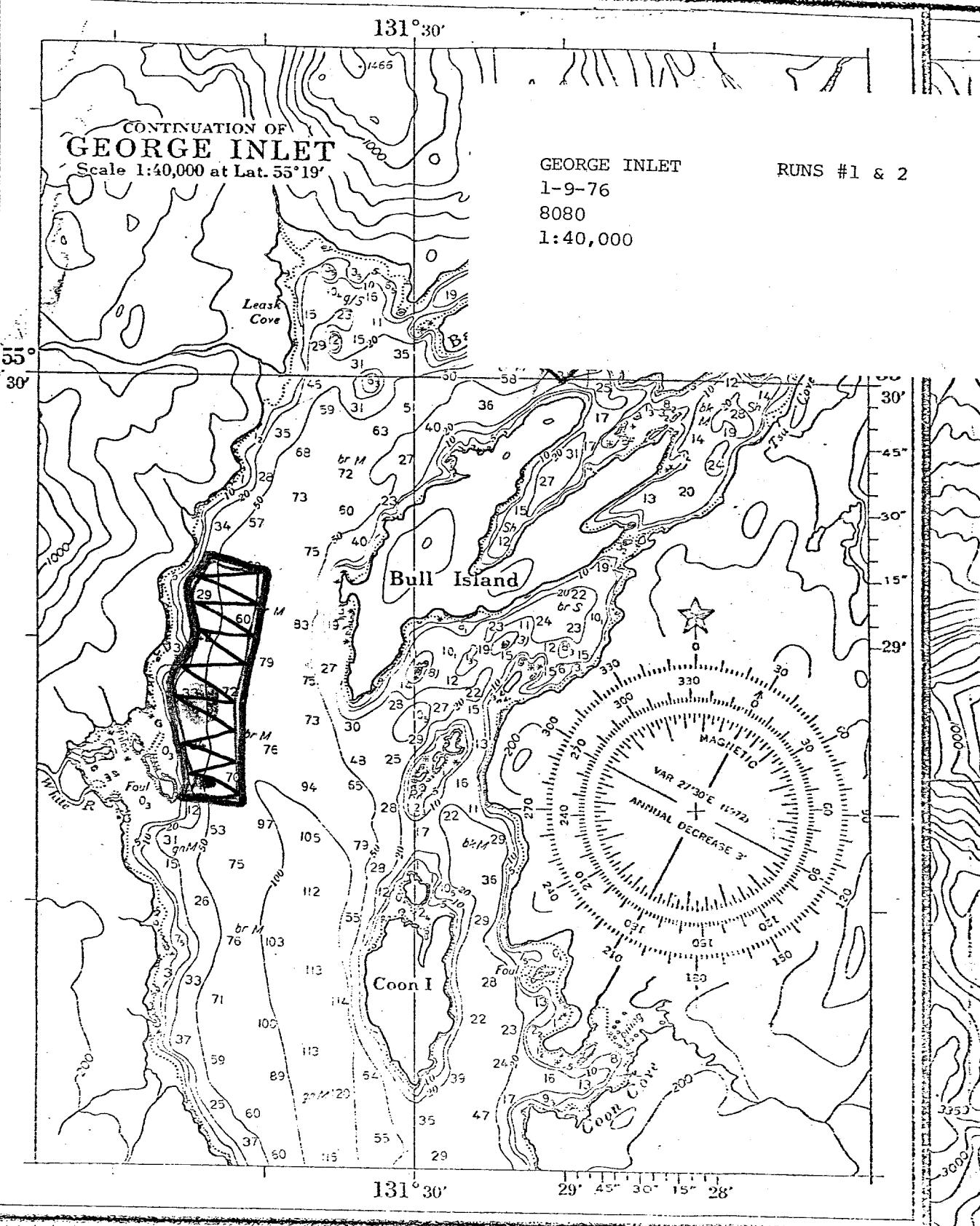
CALIBRATION TONE PRIOR TO SURVEY:		GAIN	2	START	0026	STOP	0065
		GAIN		START		STOP	
		GAIN		START		STOP	
REVERSE							

TAPING GAIN	2	REEL NO.	START	0065	TAPE	STOP
TAPING GAIN		REEL NO.	START		R. TAPE	STOP
TAPING GAIN		REEL NO.	START		R. TAPE	STOP
TAPING GAIN		REEL NO.	START		R. TAPE	STOP
TAPING GAIN		REEL NO.	START		R. TAPE	STOP

START RUN #	START	1620	STOP	1650	TOTAL	30 minutes
#	START		STOP		TOTAL	
#	START		STOP		TOTAL	
#	START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY:		GAIN	2	START	787	STOP	802
		GAIN		START		STOP	
		GAIN		START		STOP	
		GAIN		START		STOP	

COMMENTS: This transect does not represent many fish but am sending it down as a further check on the SUNDANCE's equip. As you can see at low gain setting (2) the print-out for the bottom return almost fades completely out at depths over 50 f. Also, to pick up individual targets gain must be up to at least 6. When this happens you end up with recording like previous Deer Island. Mattie adjusted the Ross and I also did some adjustment but print out still the same. Problem with TVG making unable to analyze data by computer.



AREA SURVEYED KASSAN BAY RUN # 1 & 2 VESSEL SUNDANCE DATE 2-12-76  
 OPERATOR Blankenbeckler WEATHER CONDITIONS SE 10-20, overcast.  
 TIDAL INFORMATION : High level 14.8' Time 1058 hours SURFACE TEMP. 40 F.  
 Low level 0.0' Time 1735 hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE 115 TRANSMIT PULSE 200 vpp  
 SYNC PULSE /X/ TVG GAIN 5 50 ms .06 vpp 100 ms .18 vpp 200 ms .38 vpp  
 DIAL & SETTINGS CORRECT POSITION /X/ CALIBRATION OSC. SETTING 500 mV  
 TEAC CALIBRATED /X/ LEFT VOICE CHANNEL CHECK /X/  
 CHECK OSC AGAINST ROSS DEPTH /X/

TAPE DATA:

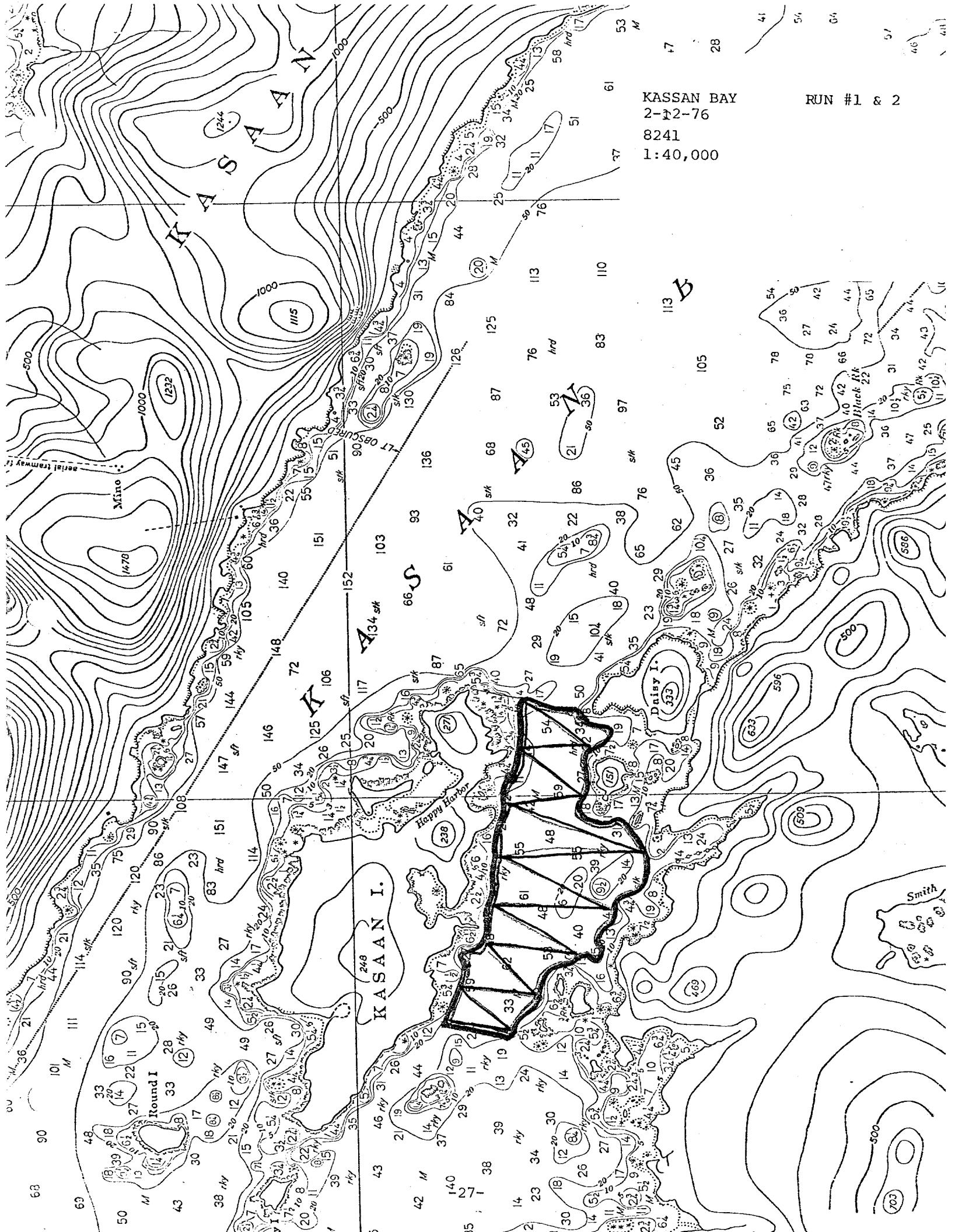
PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	4
ATTENUATION	-12db	TAPE SPEED	7 1/2	BRAND TAPE	Scotch 209
VESSEL SPEED	8 knots (constant)				

GENERAL INFORMATION:		TAPE INDEX:	START	0000	STOP	0027			
CALIBRATION TONE PRIOR TO SURVEY:		GAIN	4	START	31	STOP	69		
		GAIN		START		STOP			
		GAIN		START		STOP			
				REVERSE					
TAPING GAIN	4	REEL NO.	1	START	75	TAPE	1050	STOP	513
TAPING GAIN		REEL NO.		START		R. TAPE		STOP	
TAPING GAIN		REEL NO.		START		R. TAPE		STOP	
TAPING GAIN		REEL NO.		START		R. TAPE		STOP	
TAPING GAIN		REEL NO.		START		R. TAPE		STOP	
		START RUN #	1	START	1635	STOP	1715	TOTAL	40 min.
		#	2	START	1715	STOP	1750	TOTAL	35 min.
		#		START		STOP		TOTAL	
		#		START		STOP		TOTAL	
CALIBRATION TONE AFTER SURVEY:		GAIN	4	START	509	STOP	487		
		GAIN		START		STOP			
		GAIN		START		STOP			
		GAIN		START		STOP			

COMMENTS: Medium size herring schools distributed from 40 to 60 fathoms.

KASSAN BAY  
2-12-76  
8241  
1:40,000

RUN #1 & 2



(Kassan Bay)

AREA SURVEYED Kajisgidna Pt. RUN # 1 & 2 VESSEL SUNDANCE DATE 3-17-76

OPERATOR Blankenbeckler&Gunstromeather CONDITIONS Overcast - S.E. calm.

TIDAL INFORMATION : High level 17.5' Time 1434 hours SURFACE TEMP. 40

Low level -1.7' Time 2035 hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE	<u>115</u>	TRANSMIT PULSE	<u>200 vpp</u>
SYNC PULSE	<u>/X/</u>	TVG GAIN visually	<u>50 ms</u> <u>100 ms</u> <u>200 ms</u>
		<u>okay.</u>	
DIAL & SETTINGS CORRECT POSITION		<u>/X/</u>	CALIBRATION OSC. SETTING <u>500 mv</u>
TEAC CALIBRATED		<u>/X/</u>	LEFT VOICE CHANNEL CHECK <u>/X/</u>
CHECK OSC AGAINST ROSS DEPTH <u>/X/</u>			

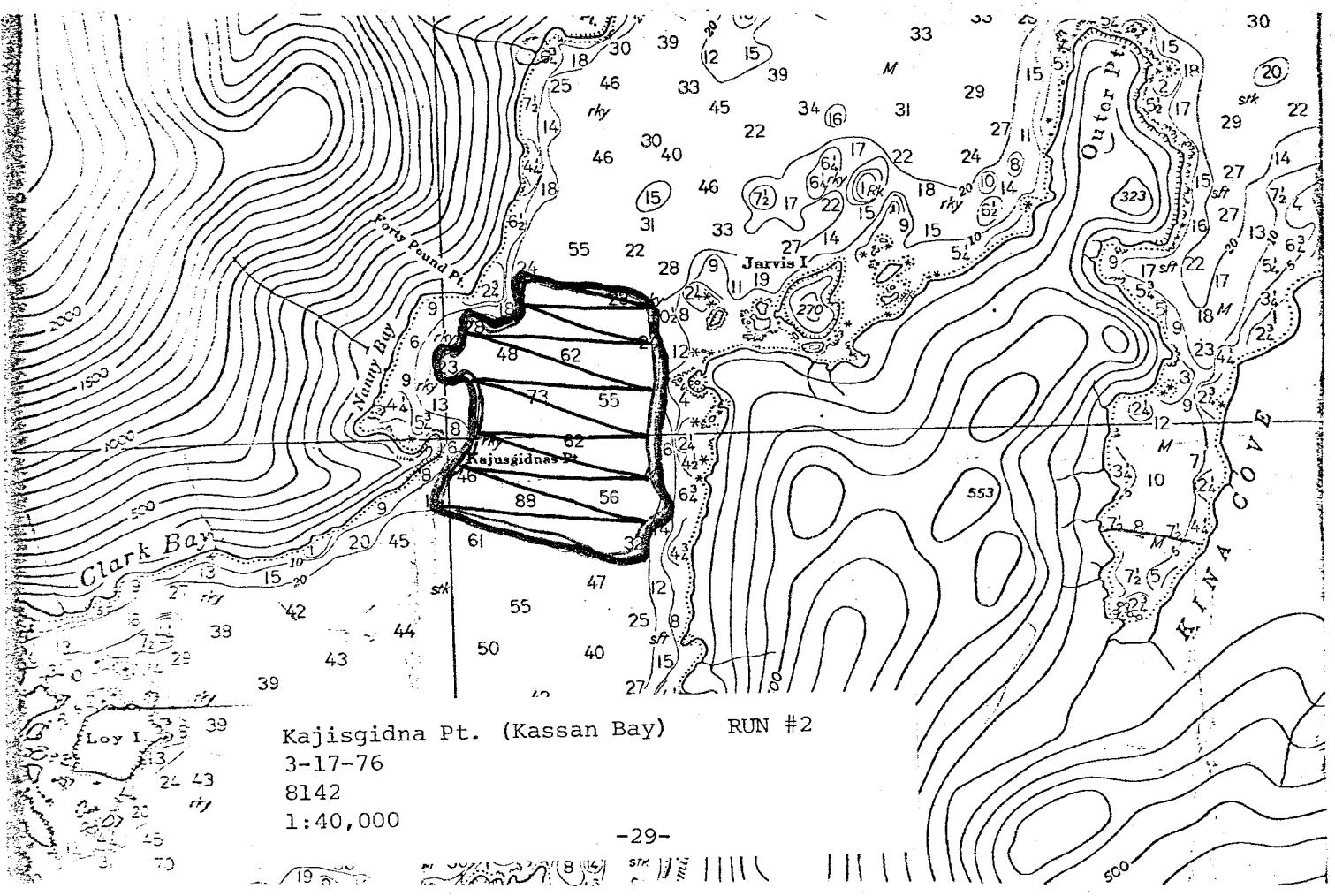
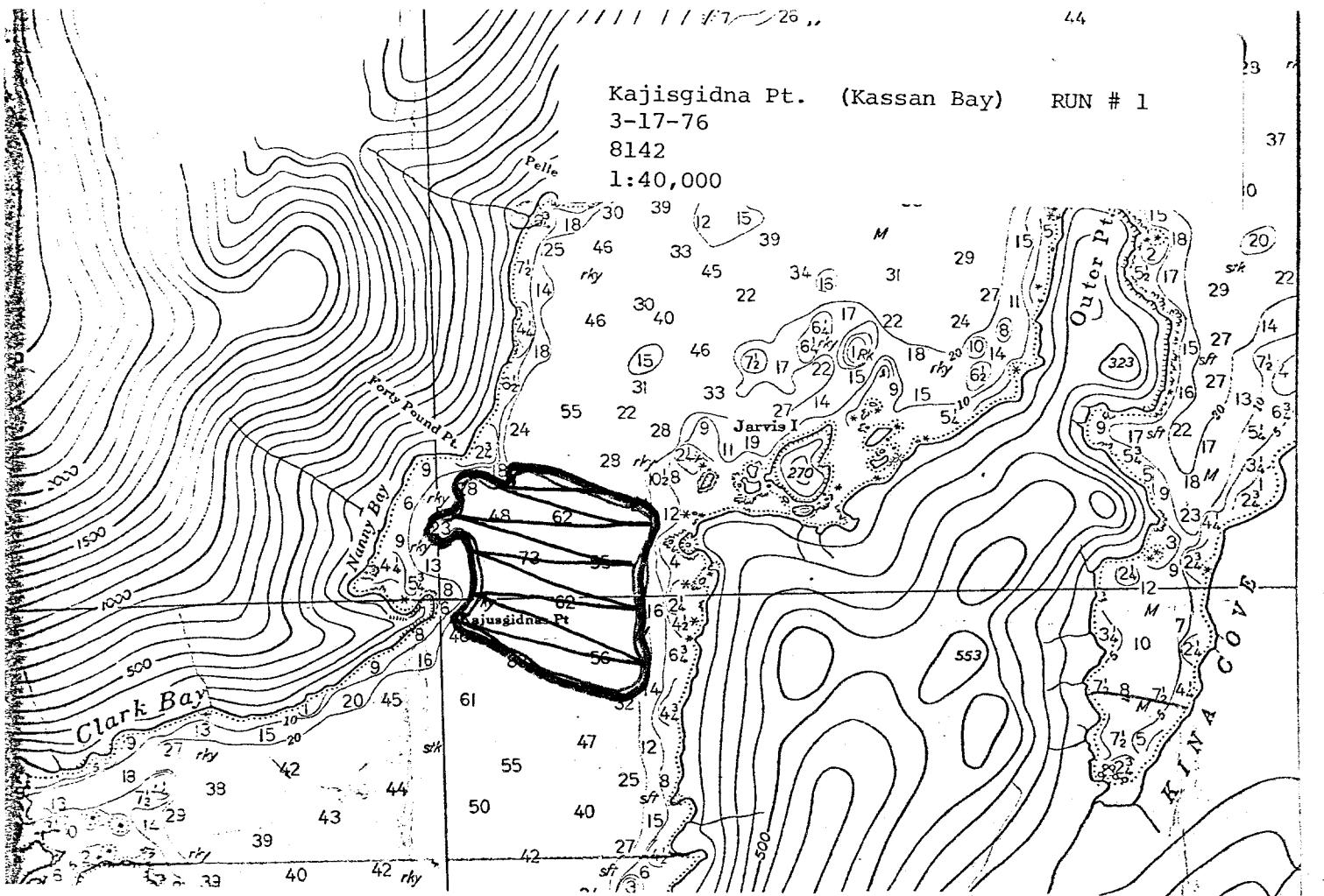
TAPE DATA:

PULSE LENGTH	<u>long</u>	PAPER SPEED	<u>4</u>	GAIN SETTINGS	<u>6</u>
ATTENUATION	<u>-12db</u>	TAPE SPEED	<u>7-1/2</u>	BRAND TAPE	<u>Scotch 209</u>
VESSEL SPEED	<u>10 knots constant</u>				

GENERAL INFORMATION:		TAPE INDEX:	START <u>0000</u>	STOP <u>0034</u>	
CALIBRATION TONE PRIOR TO SURVEY:		GAIN <u>6</u>	START <u>0034</u>	STOP <u>0060</u>	
		GAIN <u>6</u>	START <u>0682</u>	STOP <u>0698</u>	
		GAIN	START	STOP	
REVERSE					
run 1	TAPING GAIN <u>6</u>	REEL NO. <u>1</u>	START <u>0060</u>	TAPE	STOP <u>0615</u>
	TAPING GAIN	REEL NO.	START	R.TAPE	STOP
	TAPING GAIN	REEL NO.	START	R.TAPE	STOP
run 2	TAPING GAIN <u>6</u>	REEL NO.	START <u>0615</u>	R.TAPE <u>1025</u>	STOP <u>0698</u>
	TAPING GAIN	REEL NO.	START	R.TAPE	STOP
START RUN #	<u>1</u>	START <u>1646</u>	STOP <u>1718</u>	TOTAL	<u>28 min.</u>
#		START	STOP	TOTAL	
#	<u>2</u>	START <u>1718</u>	STOP <u>1755</u>	TOTAL	<u>37 min.</u>
#		START	STOP	TOTAL	
CALIBRATION TONE AFTER SURVEY:		GAIN <u>6</u>	START <u>0698</u>	STOP <u>0682</u>	
		GAIN	START	STOP	
		GAIN	START	STOP	
		GAIN	START	STOP	

COMMENTS: Herring in small schools (sparse density) distributed at 40 to 50 fathoms.

- An extra cal. tone was put on by accident on side #1 @ gain 6. This erased part of side #1 taping. Wrong button was pushed on TEAC taping forward rather than reverse on side cal. tone.
- Noise, buzz heard on ear phone throughout survey.
- Fish not positively identified as herring ??? because of high gain setting required to pick up fish at .5 to 1.0 vpp.



## APPENDIX TABLE 1 Continued

## ACOUSTICAL SURVEY

AREA SURVEYED BOCAS DE FINAS RUN # 1 VESSEL J. COBB DATE 2-6-76OPERATOR Blankenbeckler & NMFS WEATHER CONDITIONS Overcast, rain.TIDAL INFORMATION : High level 12.1' Time 1721 hours SURFACE TEMP. 5.5°C.Low level 3.5' Time 2310 hoursEQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE 500 vpp.SYNC PULSE / TVG GAIN 50 ms 100 ms 200 msDIAL & SETTINGS CORRECT POSITION / CALIBRATION OSC. SETTING 500 mv.TEAC CALIBRATED /X/ LEFT VOICE CHANNEL CHECK /CHECK OSC AGAINST ROSS DEPTH /TAPE DATA:

PULSE LENGTH	<u>Long</u>	PAPER SPEED	<u>4</u>	GAIN SETTINGS	<u>6</u>
ATTENUATION	<u>-12db</u>	TAPE SPEED	<u>7½</u>	BRAND TAPE	<u>Scotch 209</u>
VESSEL SPEED	<u>7 naut.miles/hour</u>				

GENERAL INFORMATION: TAPE INDEX: START 0000 STOP 0023

CALIBRATION TONE PRIOR TO SURVEY:	GAIN <u>6</u>	START <u>0028</u>	STOP <u>0066</u>
	GAIN	START	STOP
	GAIN	START	STOP
			REVERSE

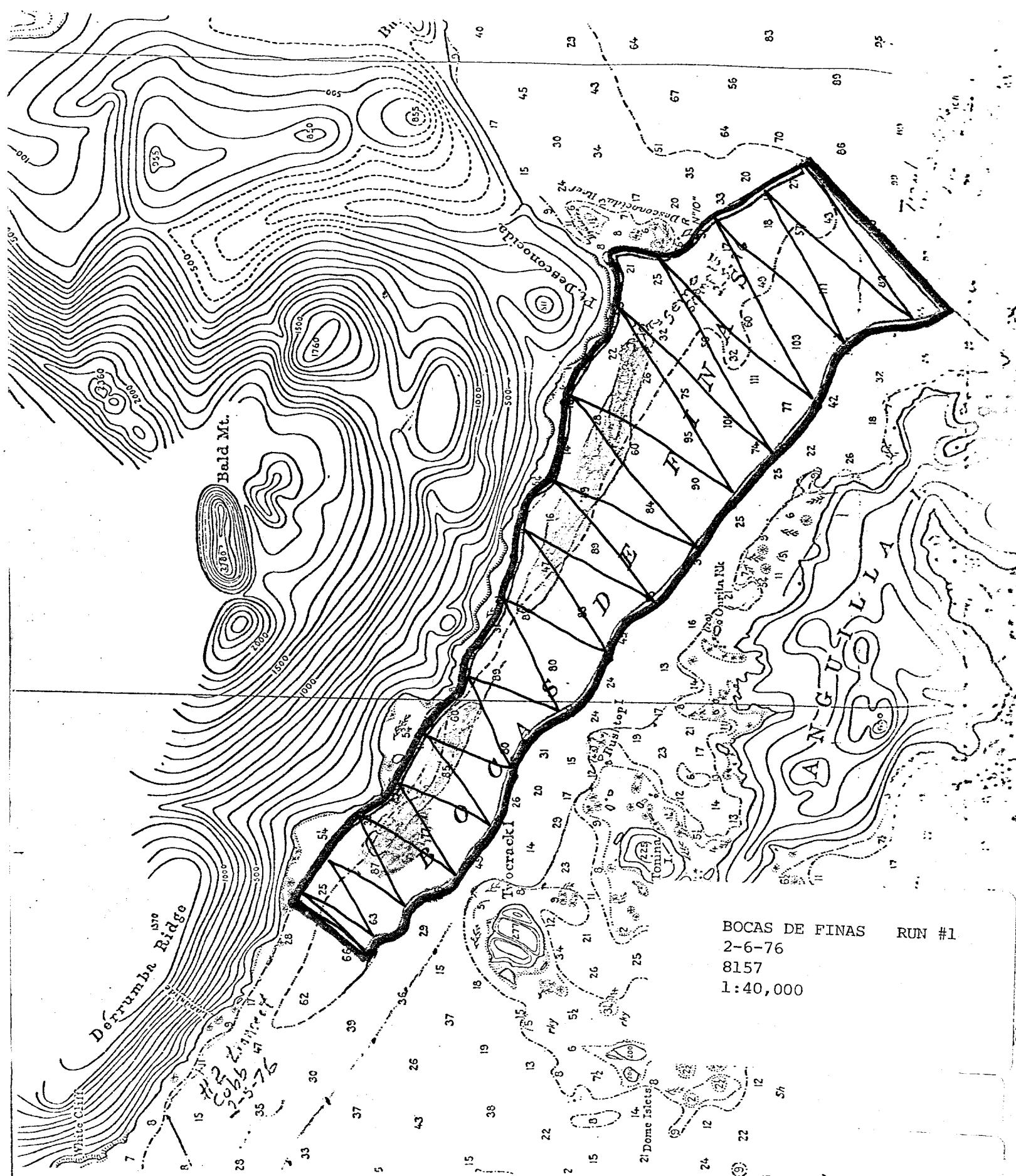
TAPING GAIN <u>6</u>	REEL NO. <u>1</u>	START <u>0080</u>	TAPE <u>1025</u>	STOP <u>end</u>
TAPING GAIN <u>6</u>	REEL NO. <u>2</u>	START <u>0000</u>	R.TAPE	STOP <u>528</u>
TAPING GAIN	REEL NO.	START	R.TAPE	STOP
TAPING GAIN	REEL NO.	START	R.TAPE	STOP
TAPING GAIN	REEL NO.	START	R.TAPE	STOP

START RUN # <u>1</u>	START <u>1121</u>	STOP <u>1303</u>	TOTAL <u>102 minutes</u>
#	START	STOP	TOTAL
#	START	STOP	TOTAL
#	START	STOP	TOTAL

CALIBRATION TONE AFTER SURVEY:	GAIN <u>6</u>	START <u>0528</u>	STOP <u>0566</u>
	GAIN	START	STOP
	GAIN	START	STOP
	GAIN	START	STOP

COMMENTS:

Transducer towed at 1 foot depth. Seiner LOUIS G. documented herring - no mixture of fish species. Tried trawling - herring eluded net. Herring in large flat schools off bottom, distributed at 65 - 75 fathoms.



BOCAS DE FINAS RUN #1  
2-6-76  
8157  
1:40,000

AREA SURVEYED BOCAS DE FINAS RUN # 2 VESSEL JOHN COBB DATE 2-5-76  
 OPERATOR Blankenbeckler & NMFS WEATHER CONDITIONS Overcast, fog.  
 TIDAL INFORMATION : High level 13.3 Time 1639 hours SURFACE TEMP. 5.5°C.  
 Low level 2.4 Time 1039 hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE 500 vpp  
 SYNC PULSE / / TVG GAIN 50 ms 100 ms 200 ms  
 DIAL & SETTINGS CORRECT POSITION / / CALIBRATION OSC. SETTING 500 mv.  
 TEAC CALIBRATED / X / LEFT VOICE CHANNEL CHECK / X /  
 CHECK OSC AGAINST ROSS DEPTH / /

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	<u>4</u>	GAIN SETTINGS	<u>5</u>
ATTENUATION	-12db	TAPE SPEED	<u>7½</u>	BRAND TAPE	
VESSEL SPEED	7 knots				

GENERAL INFORMATION:	TAPE INDEX:	START	<u>0000</u>	STOP	<u>0026</u>
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CALIBRATION TONE PRIOR TO SURVEY:	GAIN	<u>5</u>	START	<u>0031</u>	STOP	<u>0070</u>
	GAIN		START		STOP	
	GAIN		START		STOP	

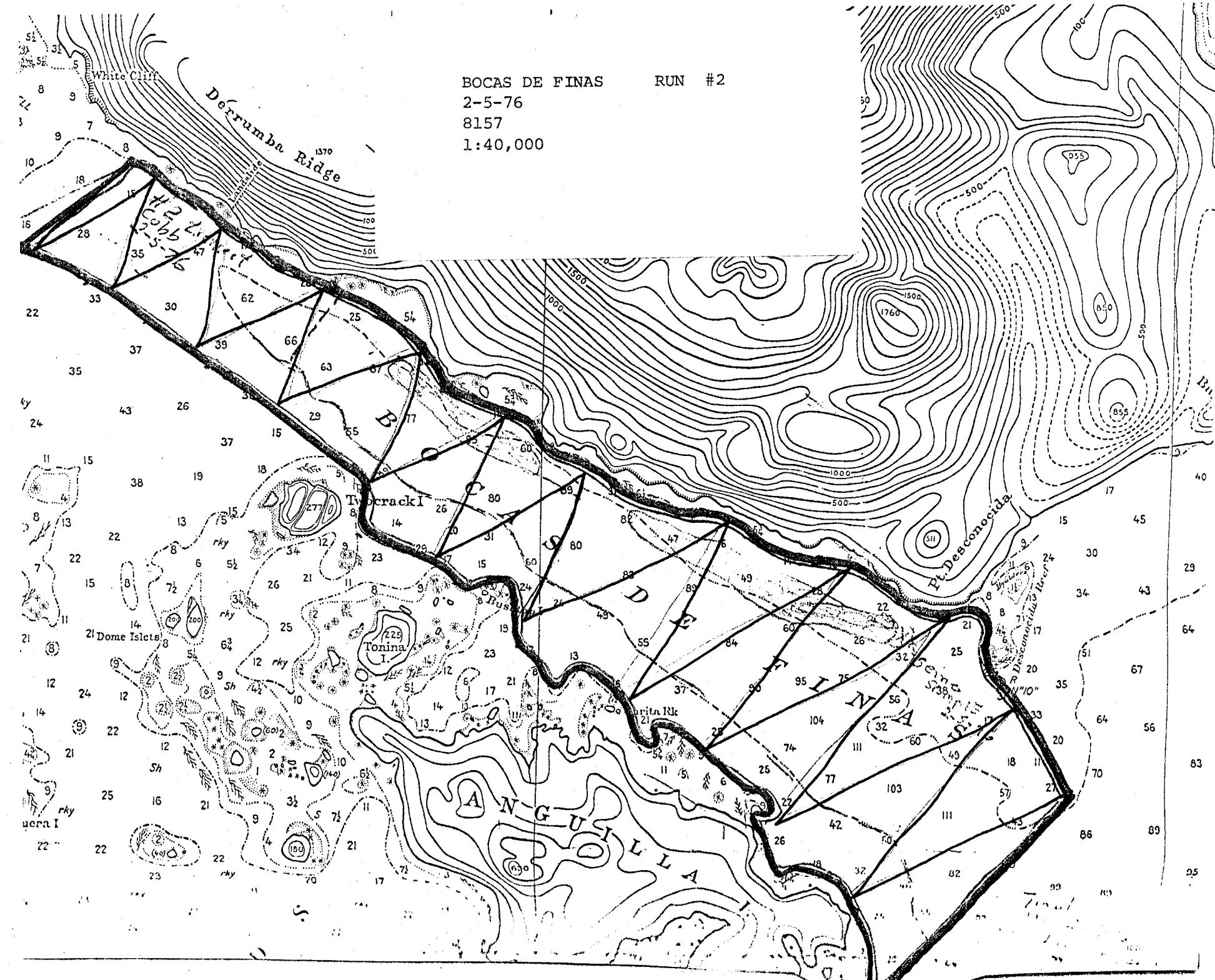
TAPING GAIN	<u>5</u>	REEL NO.	<u>1</u>	START	<u>0070</u>	TAPE	<u>1040</u>	STOP	<u>end</u>
TAPING GAIN	<u>5</u>	REEL NO.	<u>2</u>	START	<u>0000</u>	R.TAPE	<u>1048</u>	STOP	<u>0479</u>
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	

START RUN #	<u>2</u>	START	<u>1705</u>	STOP	<u>2010</u>	TOTAL	<u>185 minutes</u>
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY:	GAIN	<u>5</u>	START	<u>479</u>	STOP	<u>518 &amp; end.</u>
	GAIN		START		STOP	
	GAIN		START		STOP	
	GAIN		START		STOP	

COMMENTS: Two short delays occurred. Echogram paper repair on #1 reel and delay in #2 reel due to tape running out before reverse. Herring distributed at 10 to 20 fathoms and 50 to 60 fathoms in flat continuous schools. Transducer towed at 1 foot below the surface.

BOCAS DE FINAS RUN #2  
2-5-76  
8157  
1:40,000



APPENDIX TABLE 1 Continued

ACOUSTICAL SURVEY

AREA SURVEYED EL CAPITAN RUN # 1 & 2 VESSEL J. COBB DATE 2-6-76

OPERATOR Blankenbeckler & NMFS WEATHER CONDITIONS Overcast, rain.

TIDAL INFORMATION : High level 12.1 Time 1721 hours SURFACE TEMP 4.5 C.

Low level 3.5 Time 2310 hours

**EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:**

**INPUT VOLTAGE** 1000 vpp **TRANSMIT PULSE** 500 vpp

SYNC PULSE / / TVG GAIN 50 ms 100 ms 200 ms

DIAL & SETTINGS CORRECT POSITION      CALIBRATION OSC. SETTING      500 mv

TEAC CALIBRATED / X / LEFT VOICE CHANNEL CHECK / X /

CHECK OSC AGAINST ROSS DEPTH

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**TAPE DATA:**

PULSE LENGTH long PAPER SPEED 4 GAIN SETTINGS 5  
ATTENUATION -12db TAPE SPEED 7½ BRAND TAPE  
VESSEL SPEED 7 knots

GENERAL INFORMATION:      TAPE INDEX:      START      0000      STOP      0016

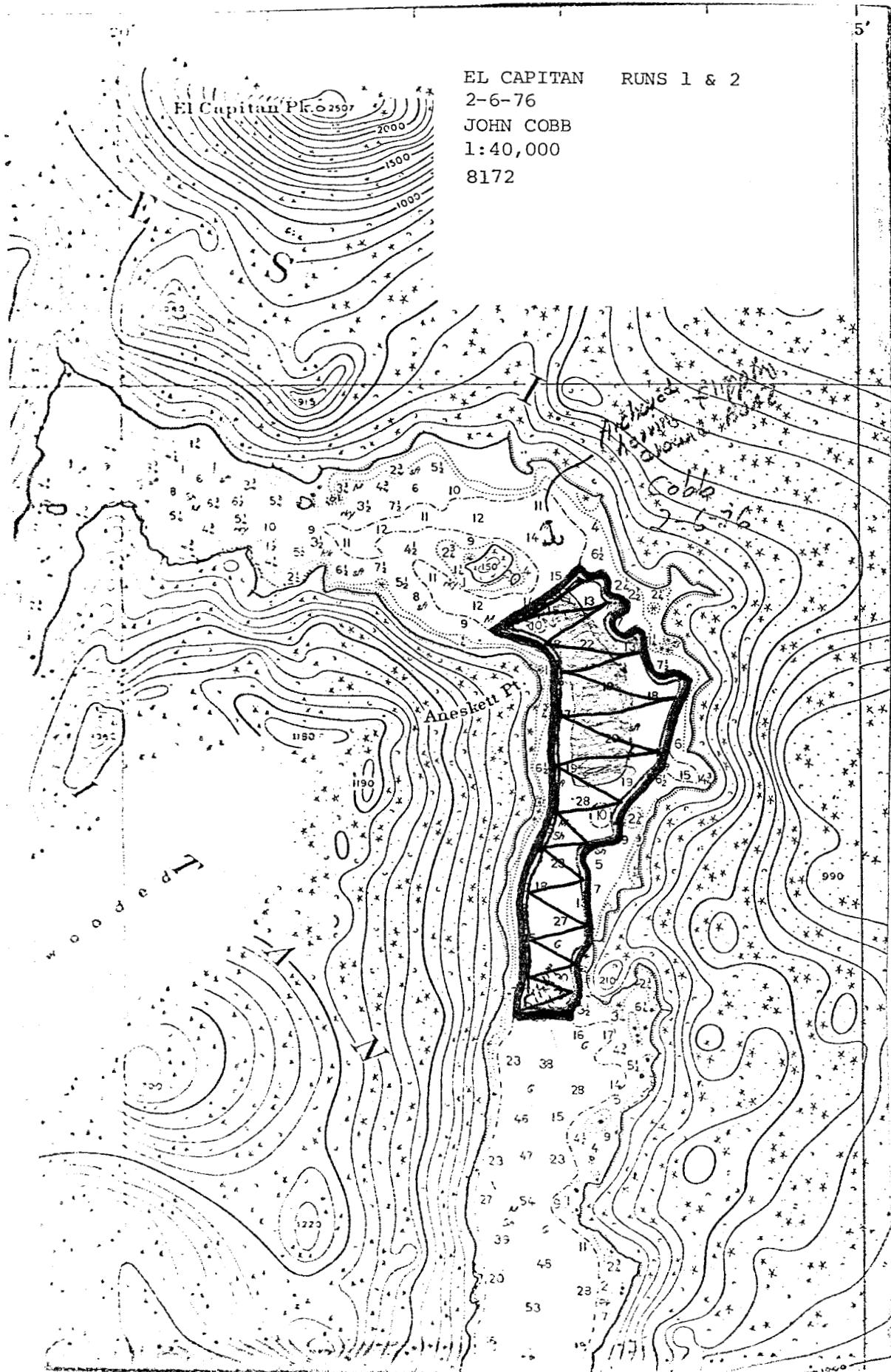
CALIBRATION TONE PRIOR TO SURVEY: GAIN 5 START 0022 STOP 0067  
GAIN START STOP  
GAIN START STOP

RUN			REVERSE						
TAPING GAIN	5	REEL NO.	1	START	0072	TAPE	1040	STOP	1011
TAPING GAIN	5	REEL NO.	2	START	1011	R.TAPE	--	STOP	0262
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	

START	RUN	#	1	START	1714	STOP	1757	TOTAL	43 minutes
		#	2	START	1757	STOP	1840	TOTAL	43 minutes
		#		START		STOP		TOTAL	
		#		START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY: GAIN 5 START 0255 STOP 0200  
GAIN START STOP  
GAIN START STOP  
GAIN START STOP

COMMENTS: Herring in small scattered schools distributed at 10-20 fathoms. Towed transducer 1 f. below surface. Anchored just above transect. Herring around vessel, small sample showed immature. Fishermen stated same (small size).



AREA SURVEYED SITKA, KATLIAK RUN # 1 VESSEL KITTIWAKE DATE 12-16-75  
 OPERATOR Copeland WEATHER CONDITIONS S.E. wind at 30, rain.  
 TIDAL INFORMATION : High level \_\_\_\_\_ Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_  
 Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_  
 SYNC PULSE  TVG GAIN \_\_\_\_\_ 50 ms \_\_\_\_\_ 100 ms \_\_\_\_\_ 200 ms \_\_\_\_\_  
 DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_  
 TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
 CHECK OSC AGAINST ROSS DEPTH

TAPE DATA:

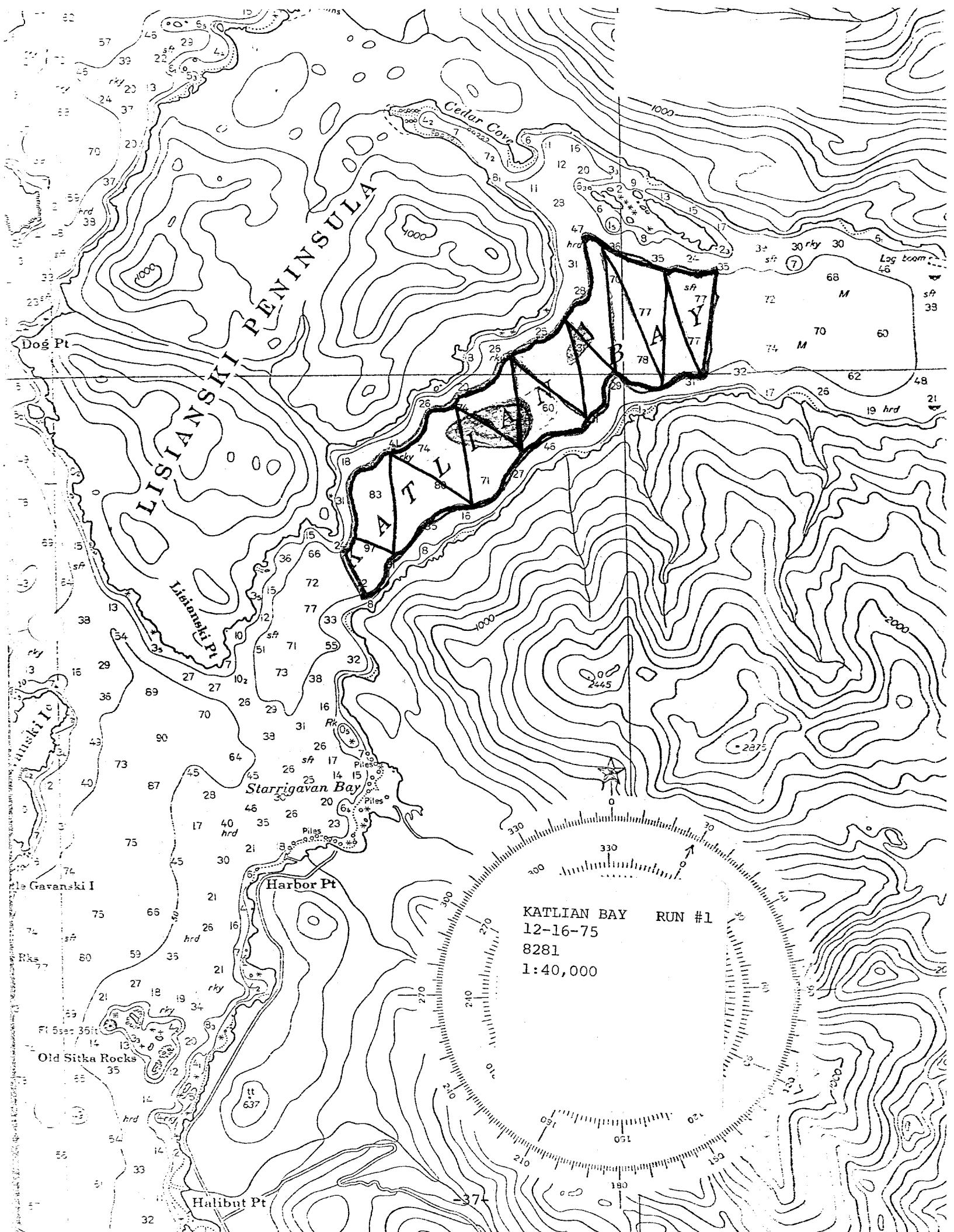
PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	5
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED					

GENERAL INFORMATION:		TAPE INDEX:	START	0000	STOP	0030	
CALIBRATION TONE PRIOR TO SURVEY:		GAIN	7	START	0030	STOP	0069
		GAIN	5	START	0069	STOP	0107
		GAIN		START		STOP	
				REVERSE			
TAPING GAIN	5	REEL NO.	START	0107	TAPE	STOP	0932
TAPING GAIN		REEL NO.	START		R.TAPE	STOP	
TAPING GAIN		REEL NO.	START		R.TAPE	STOP	
TAPING GAIN		REEL NO.	START		R.TAPE	STOP	
TAPING GAIN		REEL NO.	START		R.TAPE	STOP	
		START RUN #	1	START	1630	STOP	1707
		#		START		STOP	
		#		START		STOP	
		#		START		STOP	

CALIBRATION TONE AFTER SURVEY:		GAIN	5	START	0932	STOP	0949
		GAIN	7	START	0949	STOP	0965
		GAIN		START		STOP	
		GAIN		START		STOP	

COMMENTS:

Large school (piling type) 30-50 fathoms and several smaller schools.



AREA SURVEYED KATLIAN BAY RUN # 1 VESSEL KITTIWAKE DATE 1-25-76  
 OPERATOR Copeland WEATHER CONDITIONS S.E. wind, rain.  
 TIDAL INFORMATION : High level \_\_\_\_\_ Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_  
 Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_  
 SYNC PULSE  TVG GAIN 50 ms 100 ms 200 ms  
 DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_  
 TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
 CHECK OSC AGAINST ROSS DEPTH

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	<u>4½</u>	GAIN SETTINGS	<u>5</u>
ATTENUATION	-12db	TAPE SPEED	<u>7½</u>	BRAND TAPE	Scotch 209
VESSEL SPEED					

GENERAL INFORMATION:	TAPE INDEX:	START	0000	STOP	0030
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CALIBRATION TONE PRIOR TO SURVEY:	GAIN	<u>7</u>	START	0030	STOP	0070
	GAIN	<u>5</u>	START	0070	STOP	0110
	GAIN		START		STOP	

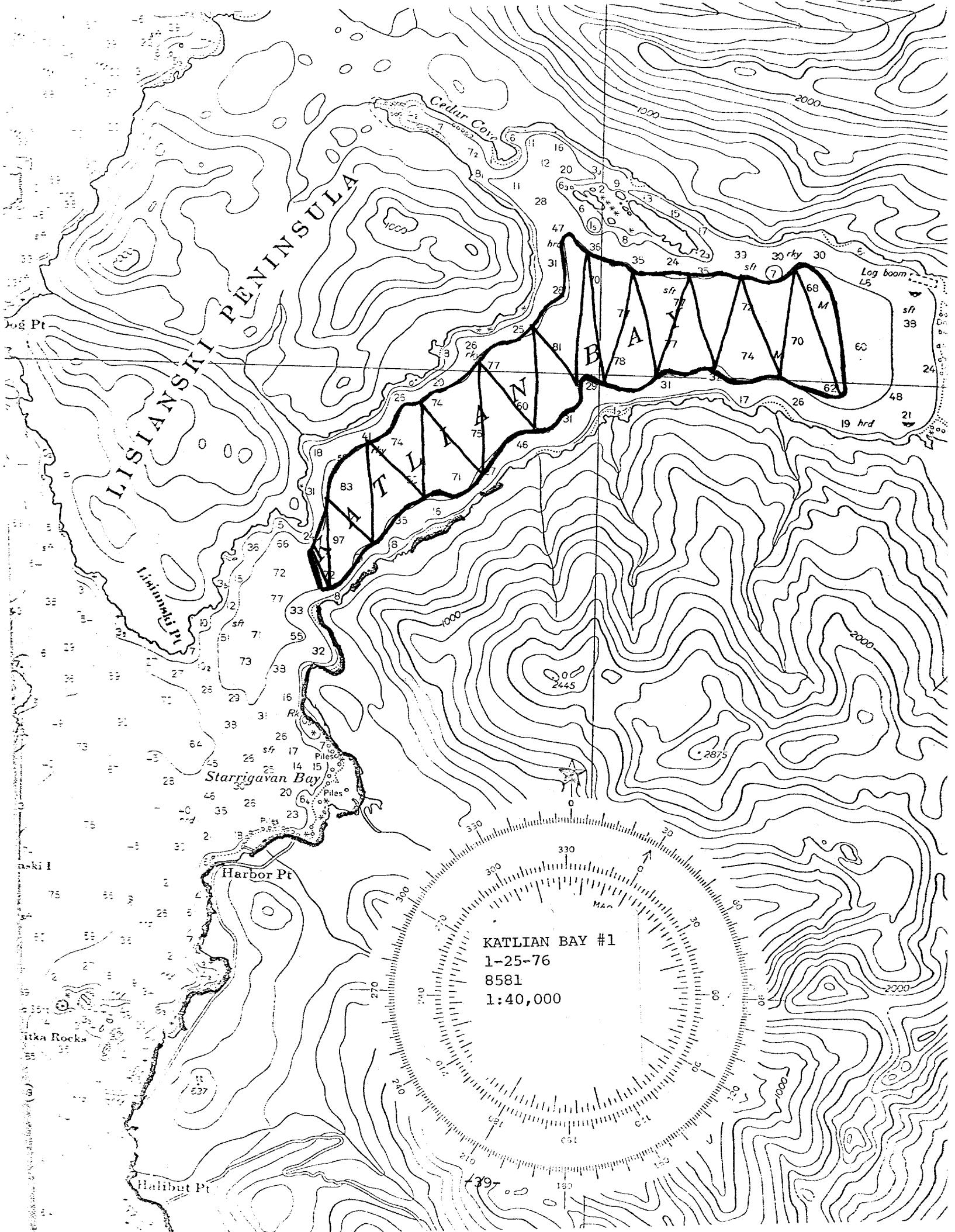
TAPING GAIN	REEL NO.	START	0110	TAPE	1055	STOP	0920
TAPING GAIN	REEL NO.	START		R.TAPE		STOP	
TAPING GAIN	REEL NO.	START		R.TAPE		STOP	
TAPING GAIN	REEL NO.	START		R.TAPE		STOP	
TAPING GAIN	REEL NO.	START		R.TAPE		STOP	

START RUN #	<u>1</u>	START	1706	STOP	1800	TOTAL	54 minutes
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY:	GAIN	<u>5</u>	START	0920	STOP	0904
	GAIN	<u>7</u>	START	0904	STOP	0888
	GAIN		START		STOP	
	GAIN		START		STOP	

COMMENTS:

Medium sized piling type schools distributed from 40 to 70 fathoms.



APPENDIX TABLE 1 Continued ACOUSTICAL SURVEY

**EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:**

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_  
SYNC PULSE  TVG GAIN \_\_\_\_\_ 50 ms \_\_\_\_\_ 100 ms \_\_\_\_\_ 200 ms \_\_\_\_\_  
DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_  
TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
CHECK OSC AGAINST ROSS DEPTH

---

**TAPE DATA:**

PULSE LENGTH Long PAPER SPEED 4 GAIN SETTINGS 5  
ATTENUATION -12db TAPE SPEED 7½ BRAND TAPE Scotch 209  
VESSEL SPEED 10 knots

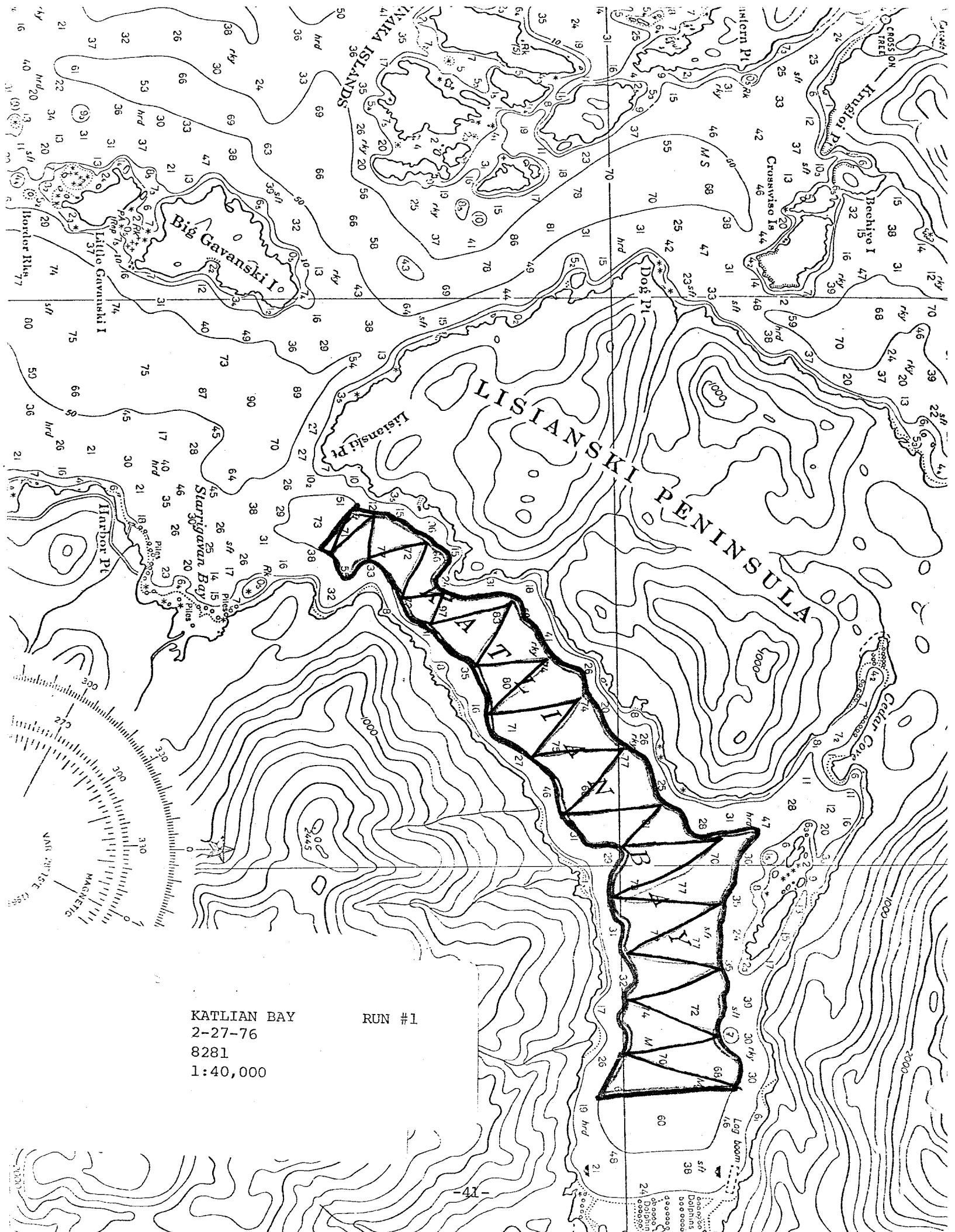
GENERAL INFORMATION:		TAPE INDEX:	START	0000	STOP	0012	
CALIBRATION TONE PRIOR TO SURVEY:		GAIN	8	START	0012	STOP	0054
		GAIN	5	START	0054	STOP	0094
		GAIN		START		STOP	
		REVERSE					
TAPING GAIN	REEL NO.	START	TAPE	1050	STOP	1104	
TAPING GAIN	REEL NO.	START	R.TAPE		STOP		
TAPING GAIN	REEL NO.	START	R.TAPE		STOP		
TAPING GAIN	REEL NO.	START	R.TAPE		STOP		
TAPING GAIN	REEL NO.	START	R.TAPE		STOP		
START RUN #		START	0930	STOP	1104	TOTAL	94 minutes
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY: GAIN 5 START 0054 STOP end  
GAIN START STOP  
GAIN START STOP  
GAIN START STOP

---

**COMMENTS:**

Herring in medium sized piling type schools distributed from 10 to 70 fathoms with majority at 50 to 70 fathoms.



## ACOUSTICAL SURVEY

APPENDIX TABLE 1 Continued

AREA SURVEYED Katlian Bay RUN # 1 VESSEL KITTIWAKE DATE 2-12-76

OPERATOR Ingledue, Copeland WEATHER CONDITIONS Partly cloudy

TIDAL INFORMATION : High level Time hours SURFACE TEMP.

Low level Time hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE TRANSMIT PULSE

SYNC PULSE  TVG GAIN 50 ms 100 ms 200 msDIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTINGTEAC CALIBRATED  LEFT VOICE CHANNEL CHECK CHECK OSC AGAINST ROSS DEPTH TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4 1/2	GAIN SETTINGS	7 & 5
ATTENUATION	-12db	TAPE SPEED	7 1/2	BRAND TAPE	Scotch 209
VESSEL SPEED	10 knots				

GENERAL INFORMATION:	TAPE INDEX:	START	00	STOP	21
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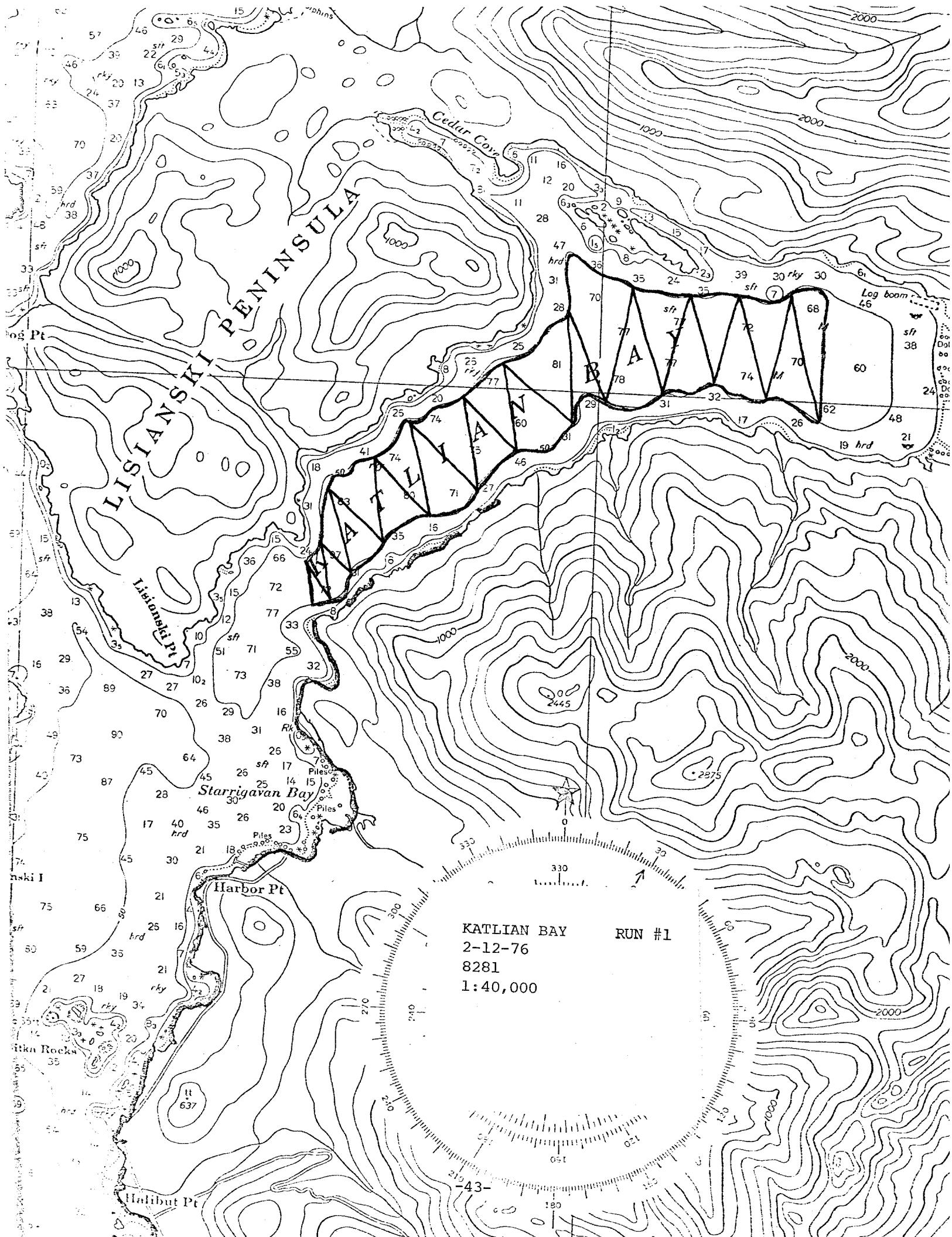
CALIBRATION TONE PRIOR TO SURVEY:	GAIN	7	START	21	STOP	65
	GAIN	5	START	65	STOP	105
	GAIN		START		STOP	
			REVERSE			

TAPING GAIN	5	REEL NO.	1	START	105	TAPE	1006	STOP	123
TAPING GAIN		REEL NO.		START		R. TAPE		STOP	
TAPING GAIN		REEL NO.		START		R. TAPE		STOP	
TAPING GAIN		REEL NO.		START		R. TAPE		STOP	
TAPING GAIN		REEL NO.		START		R. TAPE		STOP	

START RUN #	1	START	1458	STOP	1618	TOTAL	80 min.
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY:	GAIN	5	START	173	STOP	134
	GAIN	7	START	134	STOP	96
	GAIN		START		STOP	
	GAIN		START		STOP	

COMMENTS: Herring in numerous small spike-like schools distributed 65 to 75 fathoms deep



## APPENDIX TABLE 1 Continued

## ACOUSTICAL SURVEY

AREA SURVEYED Katlian Bay RUN # 2 VESSEL KITTIWAKE DATE 2-12-76  
 OPERATOR Ingledue, Copeland WEATHER CONDITIONS Light snow.  
 TIDAL INFORMATION : High level Time hours SURFACE TEMP.  
 Low level ebb Time hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

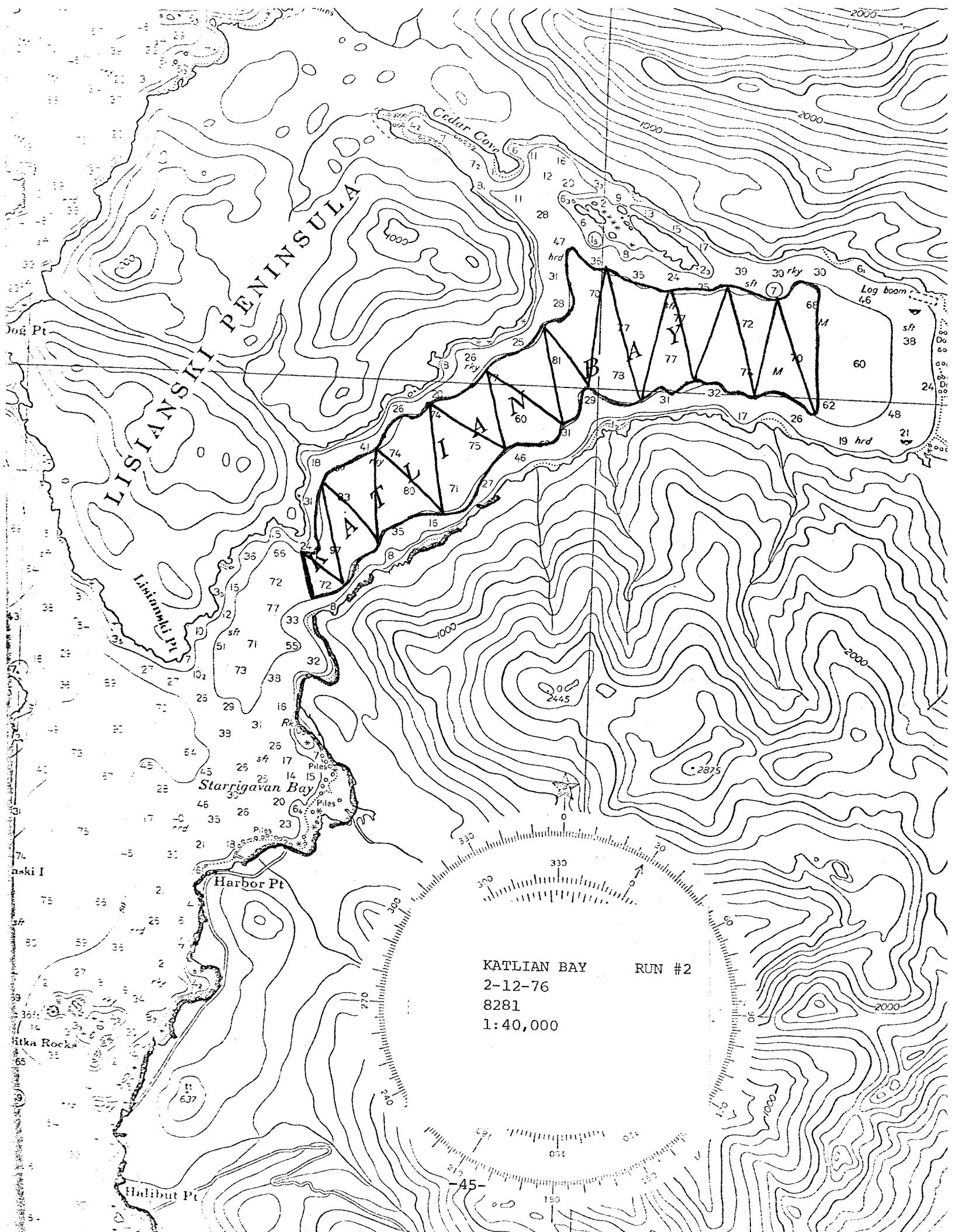
INPUT VOLTAGE TRANSMIT PULSE  
 SYNC PULSE  TVG GAIN 50 ms 100 ms 200 ms  
 DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING  
 TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
 CHECK OSC AGAINST ROSS DEPTH

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4 1/2	GAIN SETTINGS	7 & 5
ATTENUATION	-12db	TAPE SPEED	7 1/2	BRAND TAPE	Scotch 209
VESSEL SPEED	10 knots				

GENERAL INFORMATION:		TAPE INDEX:	START	00	STOP	00			
CALIBRATION TONE PRIOR TO SURVEY:		GAIN	7	START	20	STOP	63		
		GAIN	5	START	63	STOP	103		
		GAIN		START		STOP			
		REVERSE							
TAPING GAIN	5	REEL NO.	II	START	103	TAPE	1055	STOP	509
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
		START RUN #	1630	STOP	1742	TOTAL	72 min.		
		#		STOP		TOTAL			
		#		STOP		TOTAL			
		#		STOP		TOTAL			
CALIBRATION TONE AFTER SURVEY:		GAIN	5	START	590	STOP	568		
		GAIN	7	START	568	STOP	545		
		GAIN		START		STOP			
		GAIN		START		STOP			

COMMENTS: Herring in small spike schools distributed from 10 to 25 fathoms in depth.



## ACOUSTICAL SURVEY

APPENDIX TABLE 1 Continued

AREA SURVEYED Katlian Bay RUN # 1 VESSEL KITTIWAKE DATE 2-27-76OPERATOR Ingledue, Parker WEATHER CONDITIONS

TIDAL INFORMATION : High level \_\_\_\_\_ Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_

Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_

SYNC PULSE  TVG GAIN 50 ms 100 ms 200 msDIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING 500 mvTEAC CALIBRATED  LEFT VOICE CHANNEL CHECK CHECK OSC AGAINST ROSS DEPTH TAPE DATA:

PULSE LENGTH	<u>Long</u>	PAPER SPEED	<u>4</u>	GAIN SETTINGS	<u>5</u>
ATTENUATION	<u>-12 db</u>	TAPE SPEED	<u>7 1/2</u>	BRAND TAPE	
VESSEL SPEED	<u>~10 knots</u>				

GENERAL INFORMATION:	TAPE INDEX:	START	<u>0000</u>	STOP	<u>0018</u>
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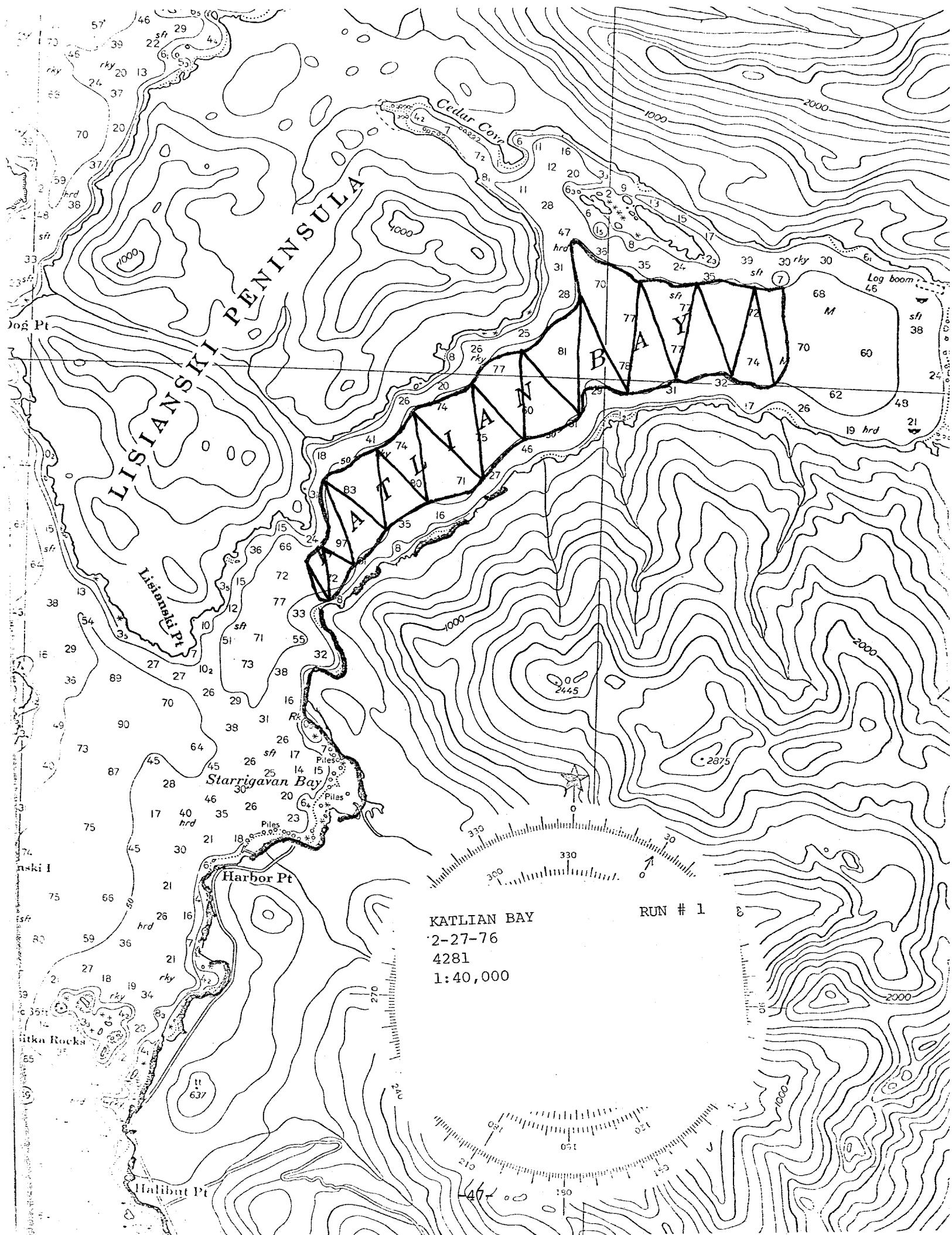
CALIBRATION TONE PRIOR TO SURVEY:	GAIN	<u>7</u>	START	<u>18</u>	STOP	<u>63</u>
	GAIN	<u>5</u>	START	<u>63</u>	STOP	<u>103</u>
			START		STOP	

TAPING GAIN	<u>5</u>	REEL NO.	<u>1</u>	START	<u>103</u>	TAPE	<u>RT 1000</u>	STOP	<u>409</u>
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	

START RUN #	<u>1</u>	START	<u>1836</u>	STOP	<u>1951</u>	TOTAL	<u>75 min.</u>
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY:	GAIN	<u>5</u>	START	<u>409</u>	STOP	<u>381</u>
	GAIN	<u>7</u>	START	<u>381</u>	STOP	<u>353</u>
	GAIN		START		STOP	
	GAIN		START		STOP	

COMMENTS: Herring in large piling type schools well off the bottom, distributed from 7 to 20 fathoms depth.



AREA SURVEYED Katlian (Nakwasina) RUN # 1 VESSEL KITTIWAKE DATE 3-25-76

OPERATOR Blankenbeckler-Parker WEATHER CONDITIONS SE 5-20. Overcast.

TIDAL INFORMATION : High level 8.3' Time 1114 hours SURFACE TEMP. 41  
Low level 0.9' Time 1640 hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE 117 VAC TRANSMIT PULSE 220 VPP (Blk. & Shield)  
Visually  
SYNC PULSE /X/ TVG GAIN okay 50 ms 100 ms 200 ms  
DIAL & SETTINGS CORRECT POSITION /X/ CALIBRATION OSC. SETTING 500 mv.  
TEAC CALIBRATED /X/ LEFT VOICE CHANNEL CHECK /X/  
CHECK OSC AGAINST ROSS DEPTH /X/

TAPE DATA:

PULSE LENGTH	long	PAPER SPEED	4	GAIN SETTINGS	4
ATTENUATION	-12db	TAPE SPEED	7 $\frac{1}{2}$	BRAND TAPE	Scotch 209
VESSEL SPEED	/ 10 knot constant				

GENERAL INFORMATION:	TAPE INDEX:	START	0000	STOP	0020
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CALIBRATION TONE PRIOR TO SURVEY:	GAIN	4	START	0020	STOP	0062
	sidel GAIN		START		STOP	
	GAIN		START		STOP	

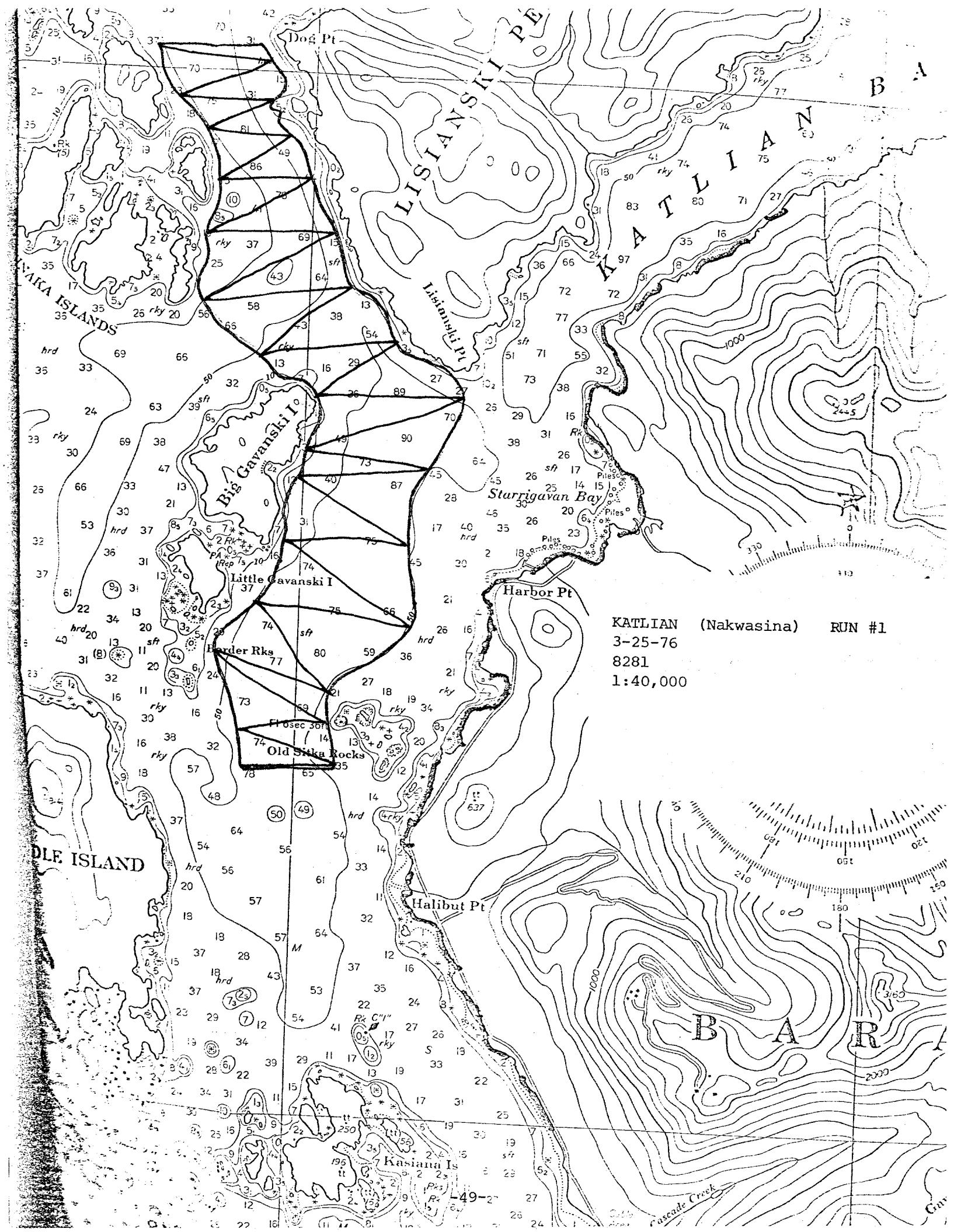
TAPING GAIN	4	REEL NO.	1	START	0062	TAPE	1025	STOP	0000
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	

START RUN #	1	START	1820	STOP	1950	TOTAL	90 min.
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY:	GAIN	4	START	1000	STOP	0984
side #2	GAIN		START		STOP	
	GAIN		START		STOP	
	GAIN		START		STOP	

COMMENTS:

Coming off big tides, 50-100 sea lions in area, schools in small volume, scattered, dense school, hard to survey.  
Side #1 at  $\approx$ 158 lost tape momentarily ( $\approx$ 15 seconds only.)



## APPENDIX TABLE 1 Continued

## ACOUSTICAL SURVEY

(Mosquito Cove area)

AREA SURVEYED Katlian Bay RUN # 1 &amp; 2 VESSEL KITTIWAKE DATE 3-26-76

OPERATOR Blanckenbeckler WEATHER CONDITIONS Calm, overcast.

TIDAL INFORMATION : High level 8.8' Time 1154 hours SURFACE TEMP. 41

Low level 0.8' Time 1730 hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE 117 VAC TRANSMIT PULSE 220 VPP (Blk &amp; Shield)

Visually

SYNC PULSE /X/ TVG GAIN checked 50 ms 100 ms 200 ms  
okay.

DIAL &amp; SETTINGS CORRECT POSITION /X/ CALIBRATION OSC. SETTING 500 mv

TEAC CALIBRATED /X/ LEFT VOICE CHANNEL CHECK /X/

CHECK OSC AGAINST ROSS DEPTH /X/

TAPE DATA:PULSE LENGTH long PAPER SPEED 4 GAIN SETTINGS 4 & 5  
ATTENUATION -12db TAPE SPEED 7½ BRAND TAPE Scotch 209  
VESSEL SPEED ~10 knots constantGENERAL INFORMATION: TAPE INDEX: START 0000 STOP 0020CALIBRATION TONE PRIOR TO SURVEY: GAIN 5 START 0020 STOP 0062  
Run 2 GAIN 4 START 0598 STOP 0619  
GAIN START STOP  
REVERSETAPING GAIN 5 REEL NO. 1 START 0062 TAPE ---- STOP 0598  
TAPING GAIN 4 REEL NO. 1 START 0619 R.TAPE 1010 STOP 0755  
TAPING GAIN REEL NO. START R.TAPE STOP  
TAPING GAIN REEL NO. START R.TAPE STOP  
TAPING GAIN REEL NO. START R.TAPE STOPSTART RUN # 1 START 1915 STOP 1934 TOTAL 19 min.  
# 2 START 1934 STOP 2015 TOTAL 41 min.  
# START STOP TOTAL  
# START STOP TOTALCALIBRATION TONE AFTER SURVEY: GAIN 4 START 0756 STOP 0737  
GAIN 5 START 0737 STOP 0718  
GAIN START STOP  
GAIN START STOPCOMMENTS:

Voice on tape indicates 3-27-76 should be 3-26-76.

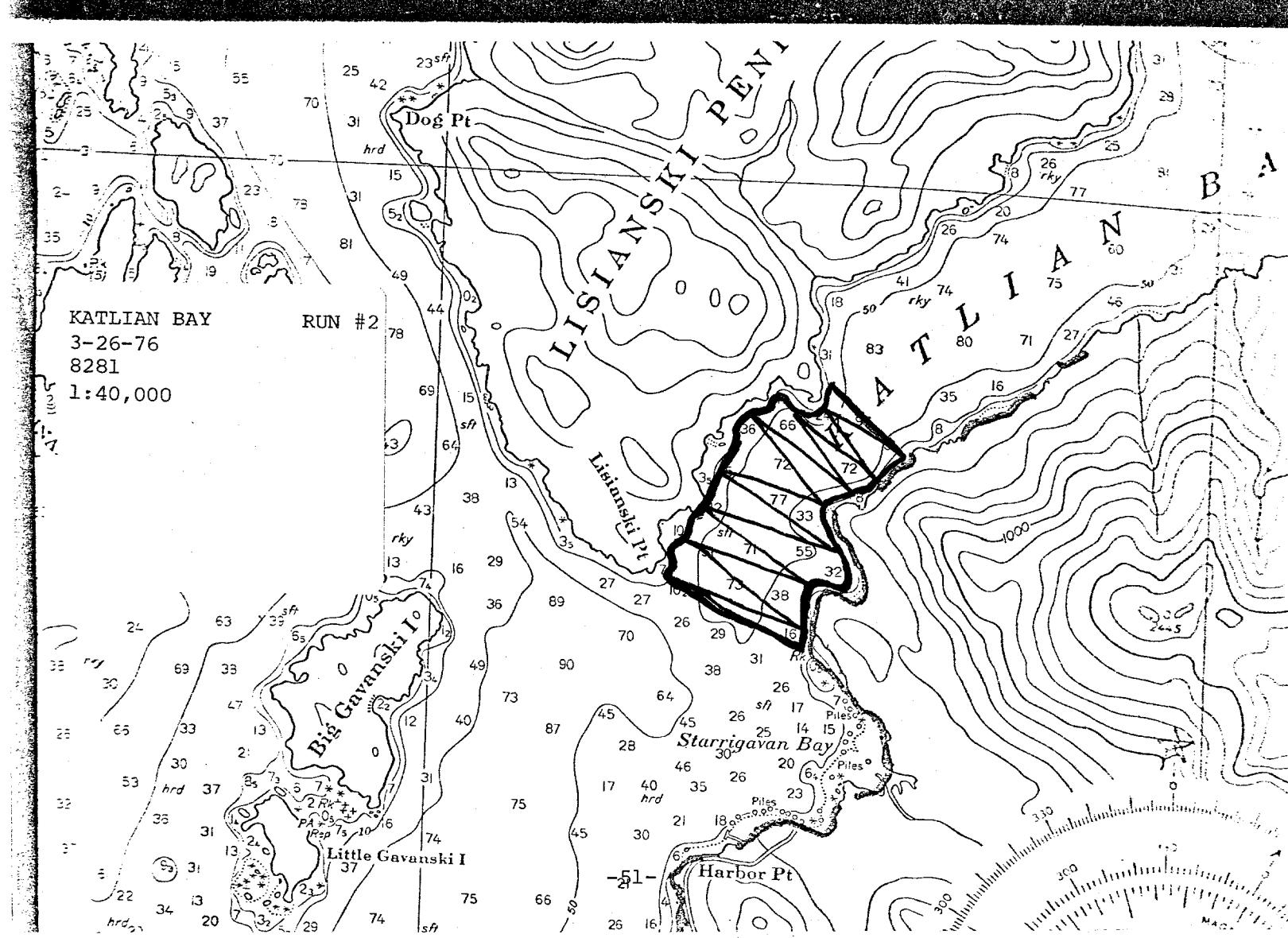
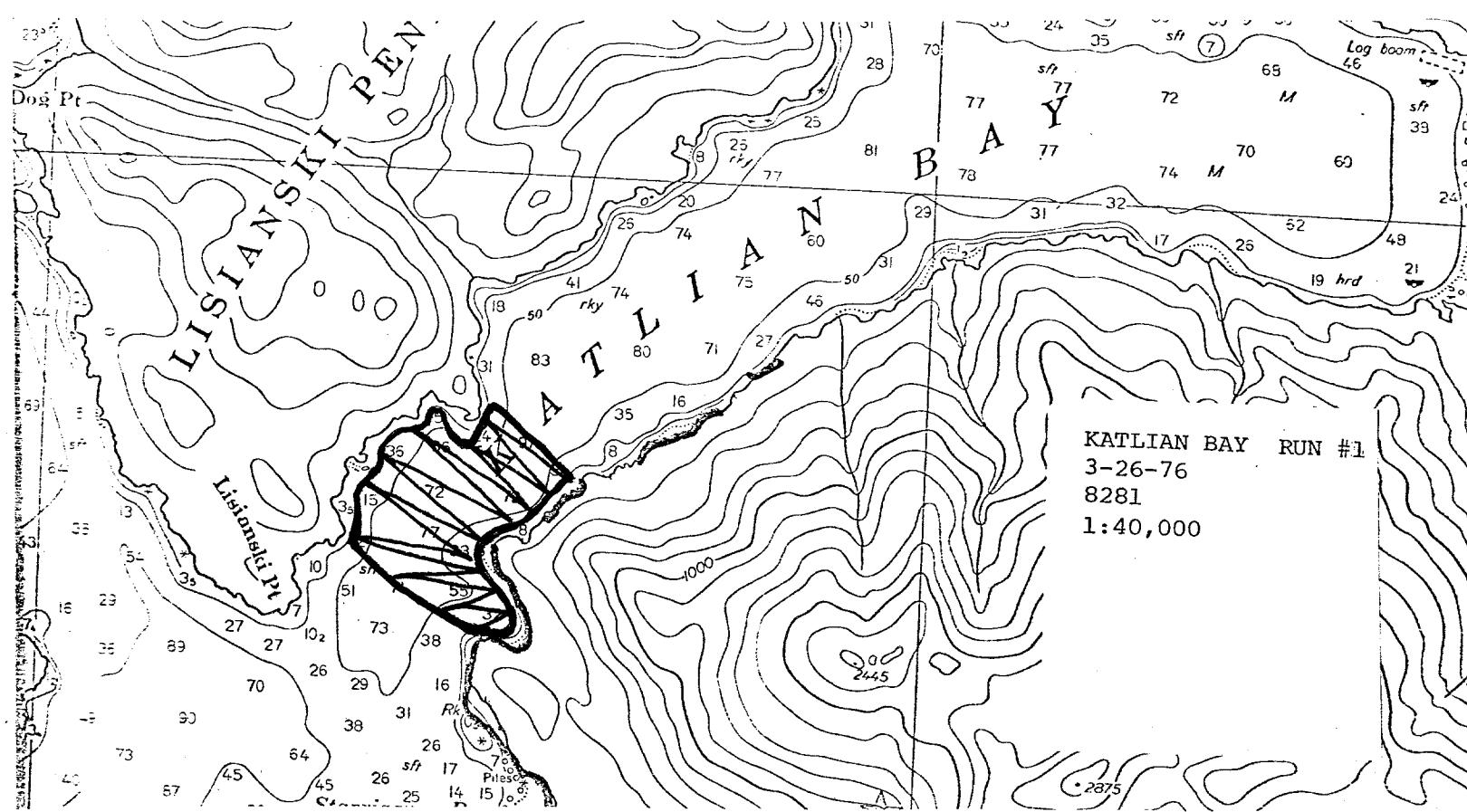
Run #1 at gain 5 partly saturated.

Sea lions and birds in area.

Obviously more fish in run #2 than run #1, area extended in run #2.

Herring still broken up. Several small schools scattered.

Six schools hit on Wesmar &amp; Ross in Gavenski area outside of transect.



AREA SURVEYED Old Sitka Rocks RUN # 1 VESSEL KITTIWAKE DATE 3-31-76  
 OPERATOR Copeland WEATHER CONDITIONS Snow. S.E. @ 20-30  
 TIDAL INFORMATION : High level 9.2 Time 1421 hours SURFACE TEMP.  
 Low level 1.3 Time 2012 hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

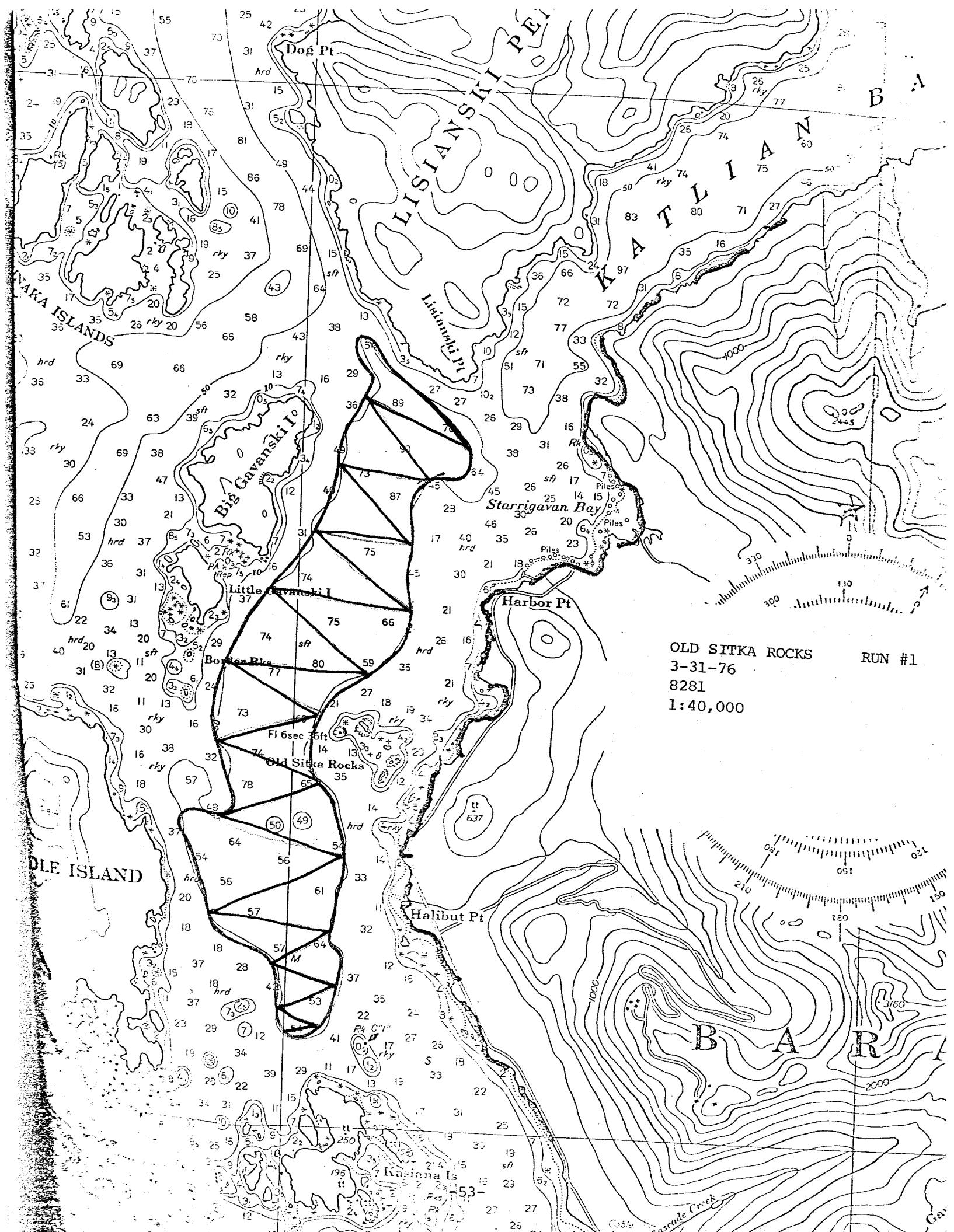
INPUT VOLTAGE 117 v. TRANSMIT PULSE  
 SYNC PULSE /x/ TVG GAIN 50 ms 100 ms 200 ms  
 DIAL & SETTINGS CORRECT POSITION /x/ CALIBRATION OSC. SETTING 500 mv  
 TEAC CALIBRATED /x/ LEFT VOICE CHANNEL CHECK /x/  
 CHECK OSC AGAINST ROSS DEPTH //

TAPE DATA:

PULSE LENGTH	long	PAPER SPEED	4	GAIN SETTINGS	7 & 5
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED	10 knots				

GENERAL INFORMATION:		TAPE INDEX:	START	0000	STOP	0025			
CALIBRATION TONE PRIOR TO SURVEY:		GAIN	5	START	38	STOP	77		
		GAIN		START		STOP			
		GAIN		START		STOP			
				REVERSE					
TAPING GAIN	5	REEL NO.	1	START	77	TAPE	1022	STOP	561
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
		START RUN #		START	1943	STOP	2154	TOTAL	
		#		START		STOP		TOTAL	
		#		START		STOP		TOTAL	
		#		START		STOP		TOTAL	
CALIBRATION TONE AFTER SURVEY:		GAIN	5	START	561	STOP	539		
		GAIN		START		STOP			
		GAIN		START		STOP			
		GAIN		START		STOP			

COMMENTS: This area was searched about 1½ hours before taping. Starting at SE corner of survey area near the black can. Search pattern was quite broad but 10 schools of herring were noted in the area, laying close to the bottom. Taping started abeam of Lisianski Pt. and 26 schools of herring were taped. Herring were about 20 fathoms at end of taping run.



AREA SURVEYED OLD SITKA ROCKS RUN # 2 VESSEL KITTIWAKE DATE 4-1-76  
 OPERATOR Copeland WEATHER CONDITIONS S.E. wind @ 35  
 TIDAL INFORMATION : High level  Time  hours SURFACE TEMP.   
Low level 1.7 Time 2041 hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE  TRANSMIT PULSE   
 SYNC PULSE /\ TVG GAIN  50 ms  100 ms  200 ms   
 DIAL & SETTINGS CORRECT POSITION /\ CALIBRATION OSC. SETTING   
 TEAC CALIBRATED /\ LEFT VOICE CHANNEL CHECK /\  
 CHECK OSC AGAINST ROSS DEPTH /\

TAPE DATA:

PULSE LENGTH Long PAPER SPEED 4 GAIN SETTINGS 5  
 ATTENUATION -12db TAPE SPEED 7½ BRAND TAPE   
 VESSEL SPEED

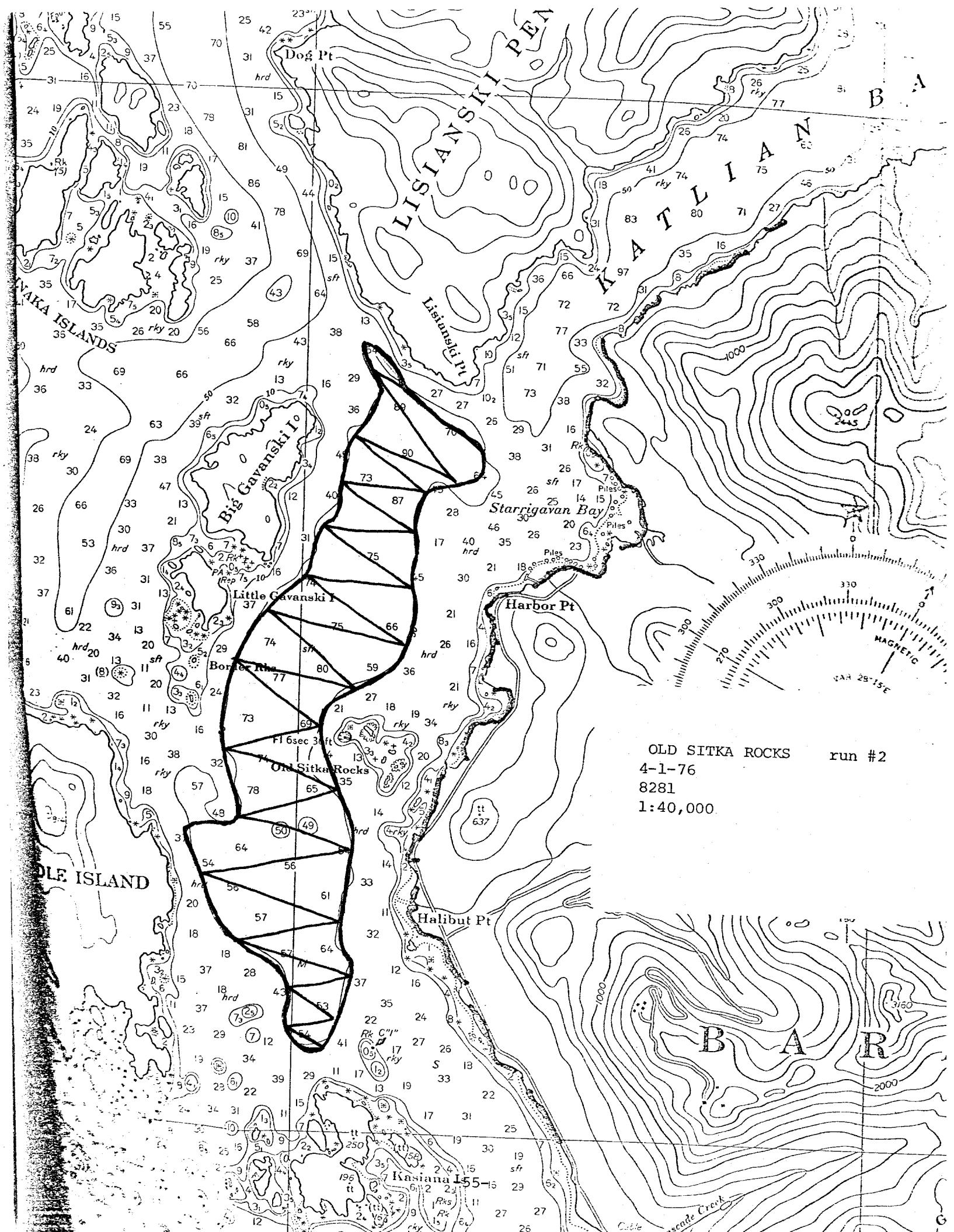
GENERAL INFORMATION:		TAPE INDEX:	START	0000	STOP	0024	
CALIBRATION TONE PRIOR TO SURVEY:		GAIN <u>5</u>	START	0024	STOP	0064	
		GAIN	START		STOP		
		GAIN	START		STOP		
				REVERSE			
TAPING GAIN <u>5</u>	REEL NO.	START	0064	TAPE	1007	STOP	0242
TAPING GAIN	REEL NO.	START		R.TAPE		STOP	
TAPING GAIN	REEL NO.	START		R.TAPE		STOP	
TAPING GAIN	REEL NO.	START		R.TAPE		STOP	
TAPING GAIN	REEL NO.	START		R.TAPE		STOP	

START	RUN #	2	START	1937	STOP	2049	TOTAL	72 minutes
#			START		STOP		TOTAL	
#			START		STOP		TOTAL	
#			START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY:		GAIN <u>5</u>	START	0242	STOP	0212
		GAIN	START		STOP	
		GAIN	START		STOP	
		GAIN	START		STOP	

COMMENTS:

Several schools (piling type) 30 to 70 fathoms depth. (25 separate small schools)



AREA SURVEYED Old Sitka Rocks RUN # 1 VESSEL AUKLET DATE 4-7-76

OPERATOR Blankenbeckler WEATHER CONDITIONS Calm - overcast.

TIDAL INFORMATION : High level 8.3' Time 0600 hours SURFACE TEMP. 41

Low level 1.3' Time 1307 hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE 115 vAC TRANSMIT PULSE

SYNC PULSE /X/ TVG ok GAIN 50 ms 100 ms 200 ms

DIAL & SETTINGS CORRECT POSITION /X/ CALIBRATION OSC. SETTING 500 mv.

TEAC CALIBRATED /X/ LEFT VOICE CHANNEL CHECK /X/

CHECK OSC AGAINST ROSS DEPTH /X/

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	4
ATTENUATION	-12db.	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED	10 knots constant				

GENERAL INFORMATION:		TAPE INDEX:	reel 1	START 0000	STOP 0030
			reel 2	0000	0020

CALIBRATION TONE PRIOR TO SURVEY #1 GAIN		4	START 0030	STOP 0071
REEL 1	#2 GAIN	4	START Reverse 1010	STOP 9994
REEL 2	#1 GAIN	4	START 0020	STOP 0063
	#2	4	REVERSE 1022	1006

TAPING GAIN	4	REEL NO.	1	START 0071	TAPE 1025	STOP 0078
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TAPING GAIN		REEL NO.		START 0063	R.TAPE 1025	STOP 0045
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TAPING GAIN		REEL NO.		START	R.TAPE	STOP
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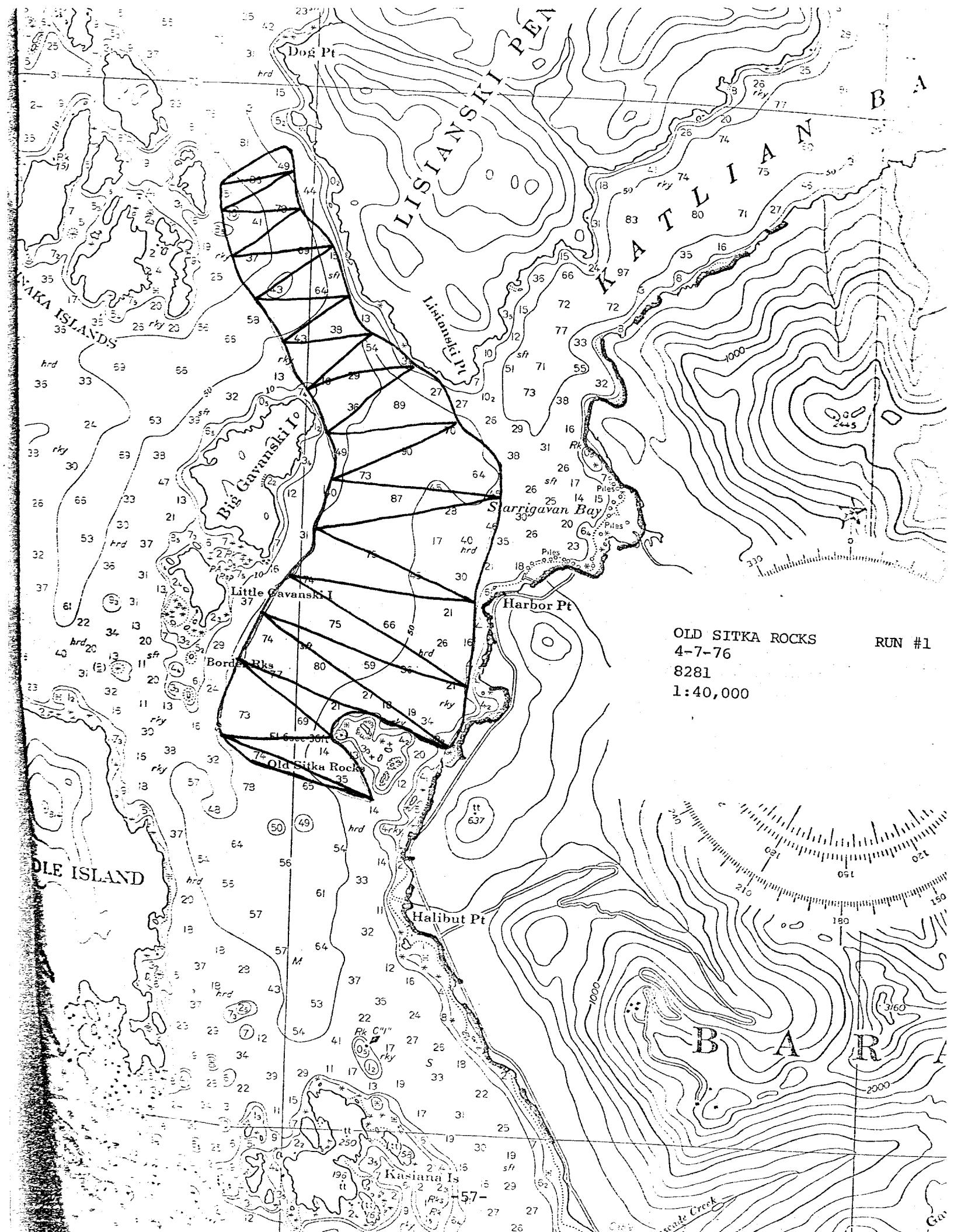
TAPING GAIN		REEL NO.		START	R.TAPE	STOP
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TAPING GAIN		REEL NO.		START	R.TAPE	STOP
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START RUN #	1	START 1200	STOP 1505	TOTAL
#		START	STOP	TOTAL
#		START	STOP	TOTAL
#		START	STOP	TOTAL

CALIBRATION TONE AFTER SURVEY:		GAIN	4	START 0045	STOP 0000
		GAIN		START	STOP
		GAIN		START	STOP
		GAIN		START	STOP

COMMENTS: Herring in tight, dense schools up to 5 fathom depth. Majority of schools in dense pile type schools 5 to 50 fathoms.



AREA SURVEYED STAG BAY RUN # 1 VESSEL KITTIWAKE DATE 12-11-75  
 OPERATOR Copeland WEATHER CONDITIONS Overcast, S.W. winds @ 20 mph. Snow.  
 TIDAL INFORMATION : High level \_\_\_\_\_ Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_  
 Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_  
 SYNC PULSE  TVG GAIN 50 ms 100 ms 200 ms  
 DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_  
 TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
 CHECK OSC AGAINST ROSS DEPTH

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	<u>4</u>	GAIN SETTINGS	<u>5</u>
ATTENUATION	-12db	TAPE SPEED	<u>7½</u>	BRAND TAPE	Scotch 209
VESSEL SPEED					

GENERAL INFORMATION: TAPE INDEX: START 0000 STOP 0033

CALIBRATION TONE PRIOR TO SURVEY: GAIN 7 START 0033 STOP 0072  
 GAIN 5 START 0072 STOP 0120  
 GAIN \_\_\_\_\_ START \_\_\_\_\_ STOP \_\_\_\_\_

REVERSE

TAPING GAIN	REEL NO.	START <u>0120</u>	TAPE _____	STOP <u>0909</u>
TAPING GAIN	REEL NO.	START _____	R.TAPE _____	STOP _____
TAPING GAIN	REEL NO.	START _____	R.TAPE _____	STOP _____
TAPING GAIN	REEL NO.	START _____	R.TAPE _____	STOP _____
TAPING GAIN	REEL NO.	START _____	R.TAPE _____	STOP _____

START RUN #	<u>1</u>	START <u>1605</u>	STOP <u>1640</u>	TOTAL, 35 minutes
#		START _____	STOP _____	TOTAL _____
#		START _____	STOP _____	TOTAL _____
#		START _____	STOP _____	TOTAL _____

CALIBRATION TONE AFTER SURVEY: GAIN 5 START 0909 STOP 0926  
 GAIN 7 START 0926 STOP 0942  
 GAIN \_\_\_\_\_ START \_\_\_\_\_ STOP \_\_\_\_\_  
 GAIN \_\_\_\_\_ START \_\_\_\_\_ STOP \_\_\_\_\_

COMMENTS:

## ACOUSTICAL SURVEY

AREA SURVEYED STAG BAY RUN # 2 VESSEL KITTIWAKE DATE 12-11-75OPERATOR Copeland WEATHER CONDITIONS Overcast, heavy snow.

TIDAL INFORMATION : High level \_\_\_\_\_ Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_

Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_

SYNC PULSE  TVG GAIN 50 ms 100 ms 200 msDIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK CHECK OSC AGAINST ROSS DEPTH TAPE DATA:

PULSE LENGTH	<u>Long</u>	PAPER SPEED	<u>4</u>	GAIN SETTINGS	<u>7 &amp; 5</u>
ATTENUATION	<u>-12db</u>	TAPE SPEED	<u>7½</u>	BRAND TAPE	<u>Scotch 209</u>
VESSEL SPEED					

GENERAL INFORMATION:	TAPE INDEX:	START	<u>0942</u>	STOP	<u>0948</u>
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CALIBRATION TONE PRIOR TO SURVEY:	GAIN	<u>5</u>	START	<u>0909</u>	STOP	<u>0926</u>
	GAIN	<u>7</u>	START	<u>0926</u>	STOP	<u>0942</u>
	GAIN		START		STOP	
			REVERSE			

TAPING GAIN	REEL NO.	START	<u>0948</u>	TAPE	<u>1045</u>	STOP	<u>0909</u>
TAPING GAIN	REEL NO.	START		R.TAPE		STOP	
TAPING GAIN	REEL NO.	START		R.TAPE		STOP	
TAPING GAIN	REEL NO.	START		R.TAPE		STOP	
TAPING GAIN	REEL NO.	START		R.TAPE		STOP	

START RUN #	START	<u>1652</u>	STOP	<u>1707</u>	TOTAL	<u>15 minutes</u>
#	START		STOP		TOTAL	
#	START		STOP		TOTAL	
#	START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY:	GAIN	<u>5</u>	START	<u>0909</u>	STOP	<u>0892</u>
	GAIN	<u>7</u>	START	<u>0892</u>	STOP	<u>0872</u>
	GAIN		START		STOP	
	GAIN		START		STOP	

COMMENTS: The largest school was in 60 fathom contour and was stick-like in shape, extending from 20 fathoms to 60 fathoms. The rest of the herring schools were distributed along the S.E. shore. The center of herring schools were 20 fathoms.

AREA SURVEYED STAG BAY RUN # 3 VESSEL KITTIWAKE DATE 12-11-75

OPERATOR Copeland WEATHER CONDITIONS Visibility 0 - heavy snow.

TIDAL INFORMATION : High level \_\_\_\_\_ Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_

Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_

SYNC PULSE  TVG GAIN 50 ms 100 ms 200 ms

DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_

TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK

CHECK OSC AGAINST ROSS DEPTH

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	5
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED					

GENERAL INFORMATION: TAPE INDEX: START 0000 STOP 0027

CALIBRATION TONE PRIOR TO SURVEY:		GAIN <u>7</u>	START <u>0027</u>	STOP <u>0067</u>
		GAIN <u>5</u>	START <u>0067</u>	STOP <u>0104</u>
		GAIN	START	STOP

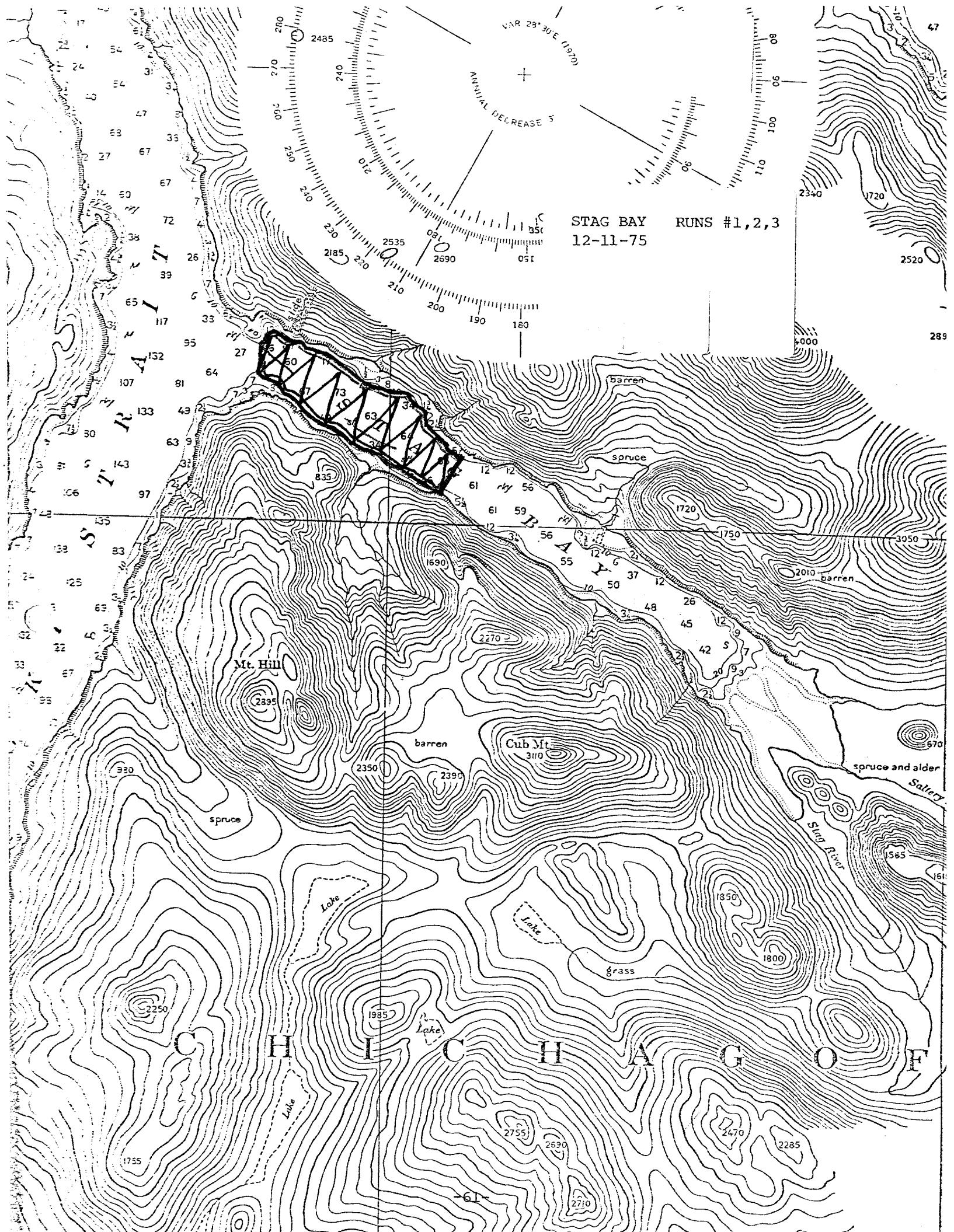
REVERSE

TAPING GAIN	REEL NO.	START <u>0104</u>	TAPE	STOP <u>0833</u>
TAPING GAIN	REEL NO.	START	R.TAPE	STOP
TAPING GAIN	REEL NO.	START	R.TAPE	STOP
TAPING GAIN	REEL NO.	START	R.TAPE	STOP
TAPING GAIN	REEL NO.	START	R.TAPE	STOP

START RUN #	<u>3</u>	START <u>1806</u>	STOP <u>1837</u>	TOTAL <u>31 minutes</u>
#		START	STOP	TOTAL
#		START	STOP	TOTAL
#		START	STOP	TOTAL

CALIBRATION TONE AFTER SURVEY:		GAIN <u>5</u>	START <u>0833</u>	STOP <u>0849</u>
		GAIN <u>7</u>	START <u>0849</u>	STOP <u>0866</u>
		GAIN	START	STOP
		GAIN	START	STOP

COMMENTS:



AREA SURVEYED PT. CAMDEN - KADAKE RUN # VESSEL AUKLET DATE 10-13-75  
 OPERATOR Blankenbeckler & WEATHER CONDITIONS Overcast, SE @ 10-20 mph.  
 Copeland  
 TIDAL INFORMATION : High level  Time hours SURFACE TEMP.  
 Low level Time hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE TRANSMIT PULSE  
 SYNC PULSE  TVG GAIN 50 ms 100 ms 200 ms  
 DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING  
 TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
 CHECK OSC AGAINST ROSS DEPTH

TAPE DATA:

PULSE LENGTH Long PAPER SPEED 4 GAIN SETTINGS 5  
 ATTENUATION -12db TAPE SPEED 7 $\frac{1}{2}$  BRAND TAPE Scotch 209  
 VESSEL SPEED

GENERAL INFORMATION:		TAPE INDEX:	START	0002	STOP	0030
CALIBRATION TONE PRIOR TO SURVEY:		GAIN 8	START	0030	STOP	0073
		GAIN 5	START	0073	STOP	0112
		GAIN	START		STOP	
				REVERSE		
TAPING GAIN	5	REEL NO.	START	0012	TAPE	1050
TAPING GAIN		REEL NO.	START		R.TAPE	
TAPING GAIN		REEL NO.	START		R.TAPE	
TAPING GAIN		REEL NO.	START		R.TAPE	
TAPING GAIN		REEL NO.	START		R.TAPE	
START RUN # 1		START	1747	STOP	1903	TOTAL 76 minutes
#		START		STOP		TOTAL
#		START		STOP		TOTAL
#		START		STOP		TOTAL
CALIBRATION TONE AFTER SURVEY:		GAIN	START		STOP	
		GAIN	START		STOP	
		GAIN	START		STOP	
		GAIN	START		STOP	

COMMENTS:

K U I U I.

PT. CAMDEN RUN#  
10-13-75  
8201  
1:217,828

The planned works in Katsuragi  
and surrounding areas.

AREA SURVEYED SCOW BAY RUN # 1 VESSEL AUKLET DATE 10-11-75  
OPERATOR Blankenbeckler & Copeland WEATHER CONDITIONS Overcast, light rain.  
TIDAL INFORMATION : High level X Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_  
Low level Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_  
SYNC PULSE  TVG GAIN \_\_\_\_\_ 50 ms \_\_\_\_\_ 100 ms \_\_\_\_\_ 200 ms \_\_\_\_\_  
DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_  
TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
CHECK OSC AGAINST ROSS DEPTH

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**TAPE DATA:**

PULSE LENGTH Long PAPER SPEED 4 GAIN SETTINGS 5  
ATTENUATION -12db TAPE SPEED 7½ BRAND TAPE Scotch 209  
VESSEL SPEED

<u>GENERAL INFORMATION:</u>	<u>TAPE INDEX:</u>	<u>START</u>	<u>0000</u>	<u>STOP</u>	<u>0026</u>			
<u>CALIBRATION TONE PRIOR TO SURVEY:</u>	GAIN	8	START	0026	STOP	0067		
	GAIN	5	START	0067	STOP	0106		
	GAIN		START		STOP			
			REVERSE					
TAPING GAIN	5	REEL NO.	START	0106	TAPE	1056	STOP	0971
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	

START	RUN	#	1	START	1707	STOP	1800	TOTAL	53 minutes
		#		START		STOP		TOTAL	
		#		START		STOP		TOTAL	
		#		START		STOP		TOTAL	

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**COMMENTS:**

Herring in continuous school distributed at 5-20 fathom depth.

Point Lock  
Keene Isla  
Anchor Po  
Finger Poi  
Tonka  
Petersbur  
(267)

ABBREVIATION

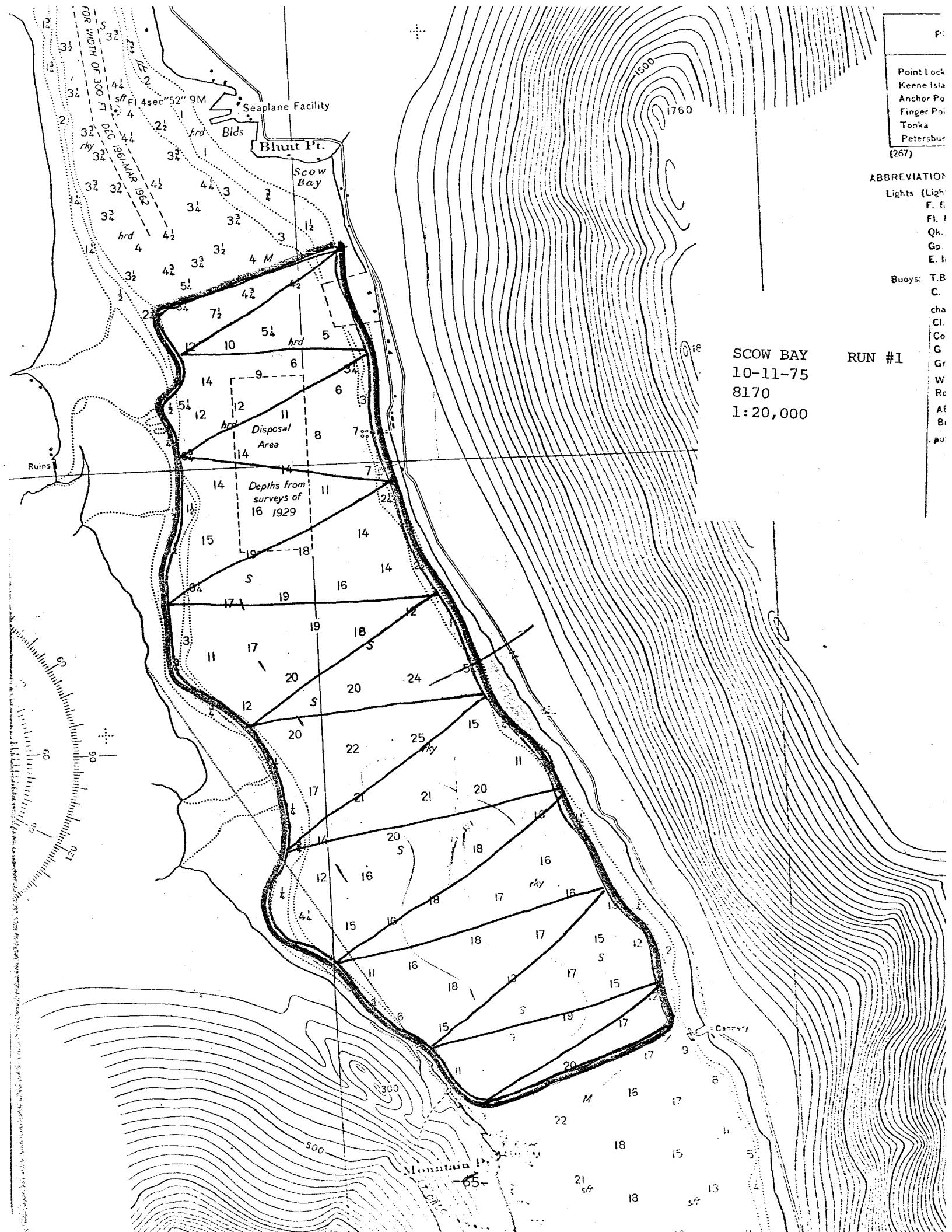
Lights (Ligh  
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Gp.  
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SCOW BAY  
10-11-75  
8170  
1:20,000

RUN #1



AREA SURVEYED SCOW BAY RUN # 1 VESSEL AUKLET DATE 1-29-76  
 OPERATOR Bergmann WEATHER CONDITIONS Rain, low overcast  
 TIDAL INFORMATION : High level \_\_\_\_\_ Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_  
 Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_  
 SYNC PULSE  TVG GAIN 50 ms 100 ms 200 ms  
 DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_  
 TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
 CHECK OSC AGAINST ROSS DEPTH

TAPE DATA:

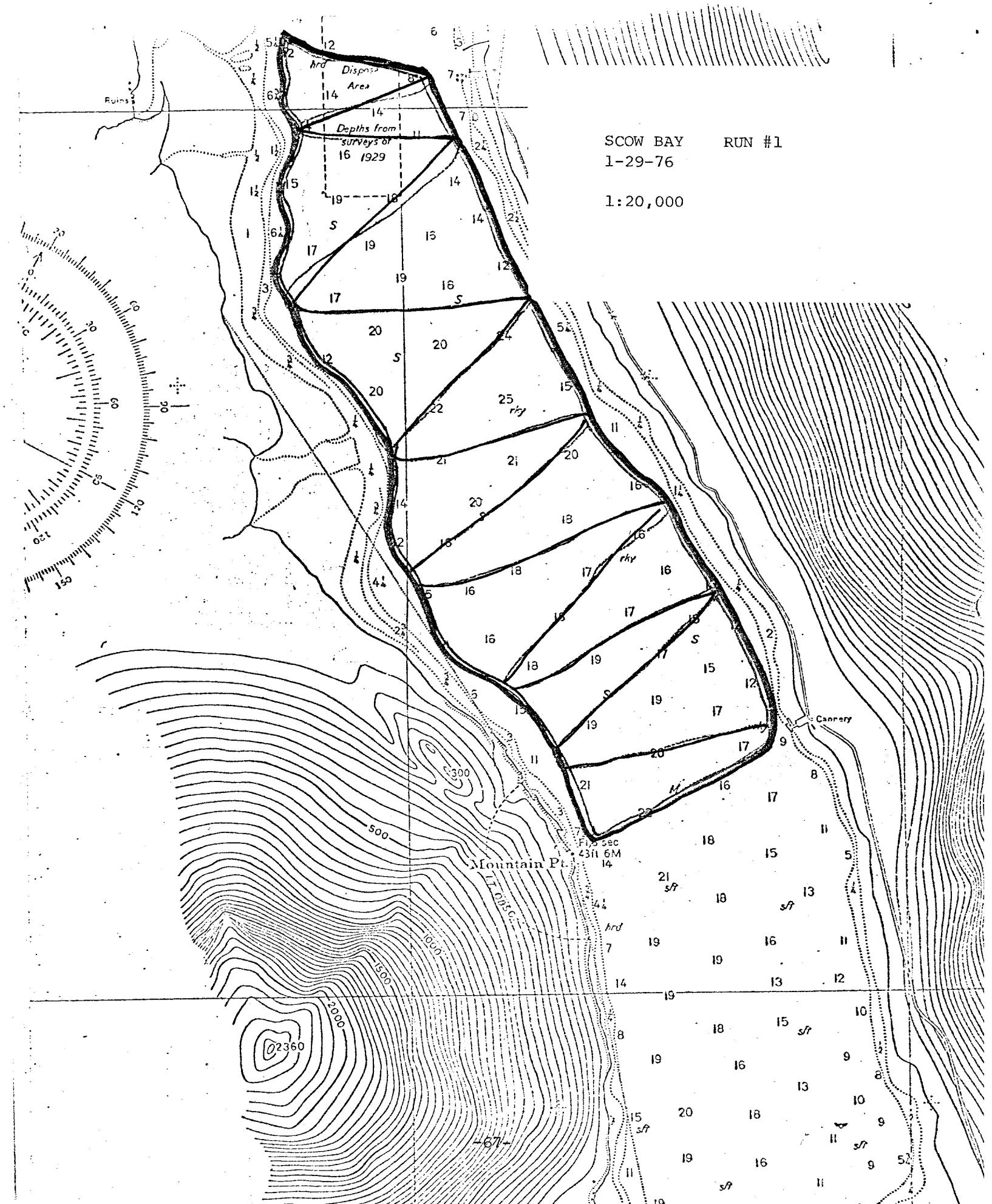
PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	5
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED					

GENERAL INFORMATION:	TAPE INDEX:	START	0010	STOP	0020
CALIBRATION TONE PRIOR TO SURVEY:	GAIN	5	START	0020	STOP
	GAIN		START		STOP
	GAIN		START		STOP
			REVERSE		
TAPING GAIN	REEL NO.	START	0060	TAPE	1017
TAPING GAIN	REEL NO.	START		R.TAPE	
TAPING GAIN	REEL NO.	START		R.TAPE	
TAPING GAIN	REEL NO.	START		R.TAPE	
TAPING GAIN	REEL NO.	START		R.TAPE	
START RUN #	1	START	1600	STOP	1653
	#	START		STOP	
	#	START		STOP	
	#	START		STOP	

CALIBRATION TONE AFTER SURVEY:	GAIN	5	START	880	STOP	863
	GAIN		START		STOP	
	GAIN		START		STOP	
	GAIN		START		STOP	

COMMENTS:

Small school (sparse density) laying just off the bottom at 20-25 fathoms.



Watkins Pt. to  
 AREA SURVEYED DEER IS. Change Is. RUN # VESSEL AUKLET DATE 10-8-75  
 OPERATOR Blankenbeckler & WEATHER CONDITIONS Calm, Clear, 60 degrees  
 Copeland  
 TIDAL INFORMATION : High level 17.8 Time 1630 hours SURFACE TEMP.  
 Low level Time hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE TRANSMIT PULSE  
 SYNC PULSE  TVG GAIN 50 ms 100 ms 200 ms  
 DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING  
 TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
 CHECK OSC AGAINST ROSS DEPTH

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	5
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED					

GENERAL INFORMATION:		TAPE INDEX:	START	0004	STOP	0018		
CALIBRATION TONE PRIOR TO SURVEY:		GAIN 8	START	0032	STOP	0070		
		GAIN 5	START	0074	STOP	0112		
		GAIN	START		STOP			
		REVERSE						
TAPING GAIN	5	REEL NO.	START	0112	TAPE	1016	STOP	0655
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
		START RUN # 1	1710	STOP	1815	TOTAL	65 minutes	
		#	START	STOP		TOTAL		
		#	START	STOP		TOTAL		
		#	START	STOP		TOTAL		
CALIBRATION TONE AFTER SURVEY:		GAIN 5	START	0655	STOP	0635		
		GAIN 8	START	0635	STOP	0615		
		GAIN	START		STOP			
		GAIN	START		STOP			

COMMENTS:

Herring school 15 to 35 fathoms deep. Essentially two schools.

-69-

DEER ISLAND - Watkins  
Pt. to Change Island

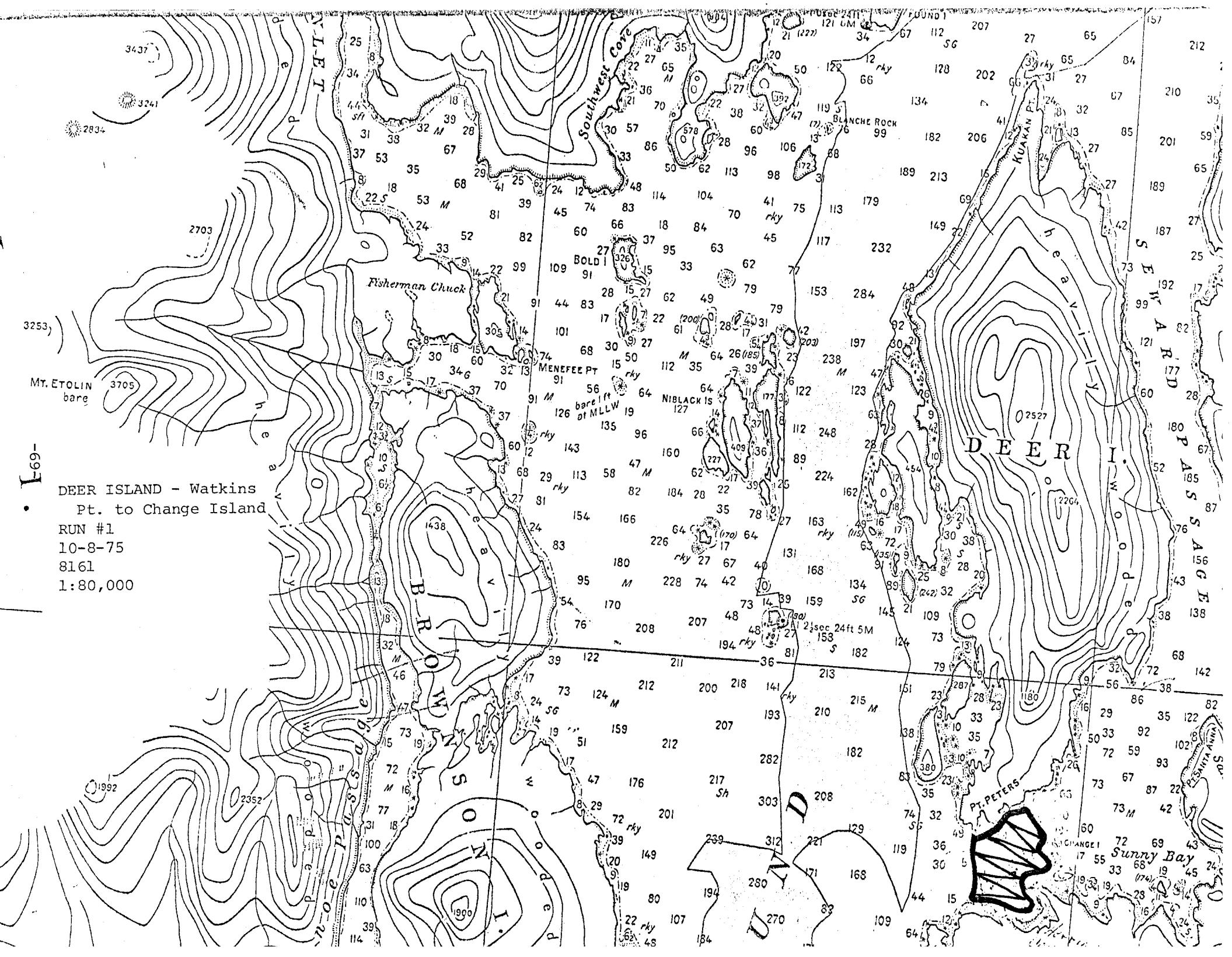
## RUN #1

10-8-75

10-875

8161

1:80,000



AREA SURVEYED DEER ISLAND RUN # 1 VESSEL KITTIWAKE DATE 11-21-75

OPERATOR Blankenbeckler & Copeland WEATHER CONDITIONS

TIDAL INFORMATION : High level 17.7 Time 1459 hours SURFACE TEMP.

Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_

SYNC PULSE / / TVG GAIN 50 ms 100 ms 200 ms

DIAL & SETTINGS CORRECT POSITION / / CALIBRATION OSC. SETTING

TEAC CALIBRATED / / LEFT VOICE CHANNEL CHECK / /

CHECK OSC AGAINST ROSS DEPTH / /

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	<u>4</u>	GAIN SETTINGS	<u>5 &amp; 4</u>
ATTENUATION	-12db	TAPE SPEED	<u>7½</u>	BRAND TAPE	<u>Scotch 209</u>
VESSEL SPEED					

GENERAL INFORMATION:		TAPE INDEX:	START	0000	STOP	0021
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CALIBRATION TONE PRIOR TO SURVEY:		GAIN	<u>8</u>	START	0021	STOP	0061
		GAIN	<u>5</u>	START	0061	STOP	0101
		GAIN		START		STOP	
					REVERSE		

TAPING GAIN	<u>5</u>	REEL NO.	START	0101	TAPE	1050	STOP	1050
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TAPING GAIN	<u>4</u>	REEL NO.	START	1050	R.TAPE		STOP	0634
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TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
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TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
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TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
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START	RUN #	<u>1</u>	START	1315	STOP	1426	TOTAL	71 minutes
#			START		STOP		TOTAL	
#			START		STOP		TOTAL	
#			START		STOP		TOTAL	

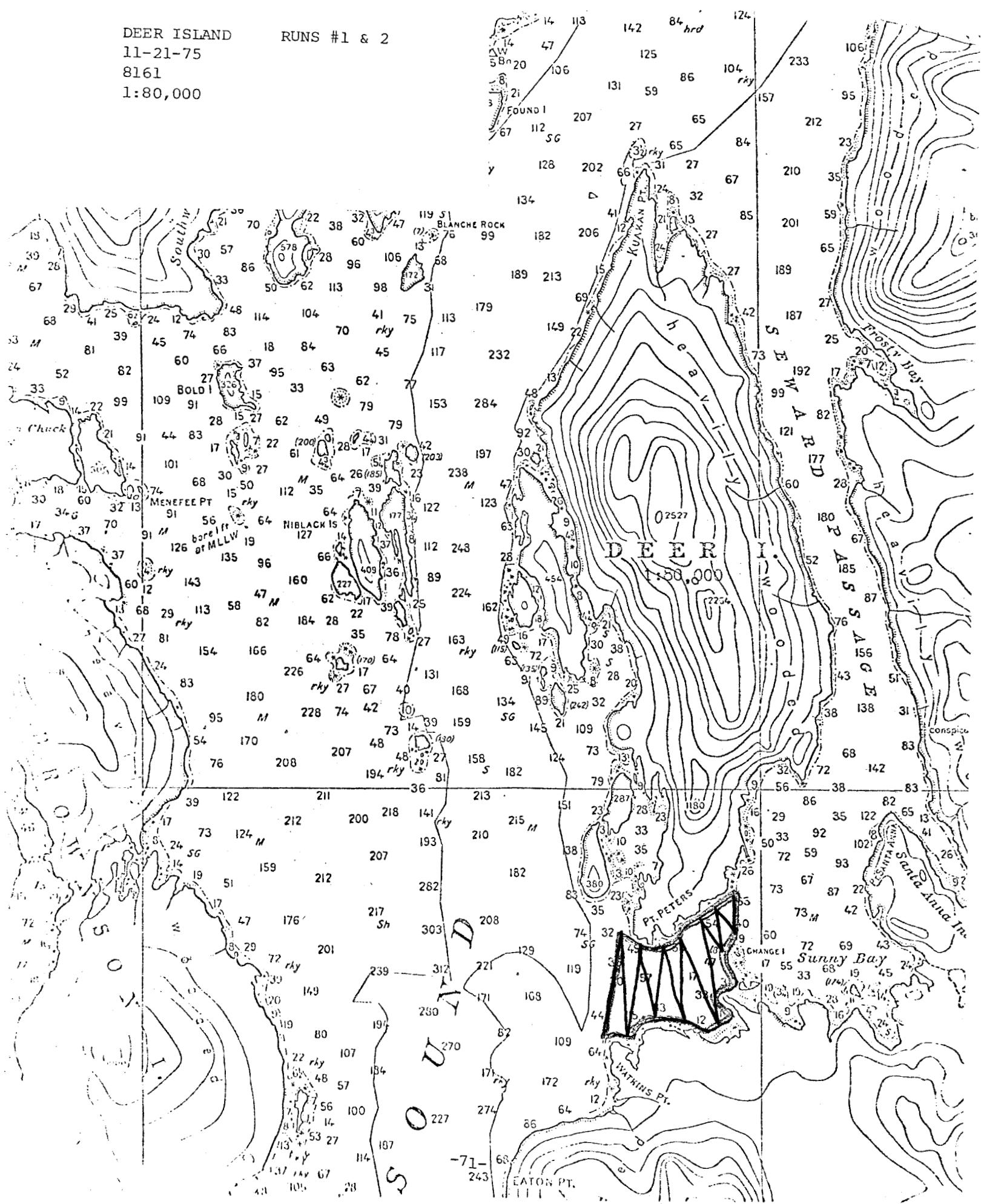
CALIBRATION TONE AFTER SURVEY:		GAIN	<u>5</u>	START	0634	STOP	0612
		GAIN	<u>4</u>	START	0612	STOP	0590
		GAIN	<u>8</u>	START	0590	STOP	0568
		GAIN		START		STOP	

COMMENTS:

Herring distributed at 15 to 30 fathoms in one continuous school.

DEER ISLAND  
11-21-75  
8161  
1:80,000

RUNS #1 & 2



AREA SURVEYED DEER ISLAND RUN # 2 VESSEL KITTIWAKE DATE 11-21-75

OPERATOR Blankenbeckler & Copeland WEATHER CONDITIONS

TIDAL INFORMATION : High level 17.7 Time 1459 hours SURFACE TEMP.

Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_

SYNC PULSE / TVG GAIN 50 ms 100 ms 200 ms

DIAL & SETTINGS CORRECT POSITION / CALIBRATION OSC. SETTING

TEAC CALIBRATED / LEFT VOICE CHANNEL CHECK /

CHECK OSC AGAINST ROSS DEPTH /

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	5
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED					

GENERAL INFORMATION:		TAPE INDEX:	START	0000	STOP	0026
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CALIBRATION TONE PRIOR TO SURVEY:		GAIN	8	START	0026	STOP	0067
		GAIN	5	START	0067	STOP	0104
		GAIN		START		STOP	
		REVERSE					

TAPING GAIN	5	REEL NO.	START	0104	TAPE	1050	STOP	0736
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	

START RUN #	2	START	1500	STOP	1605	TOTAL	65 minutes
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	

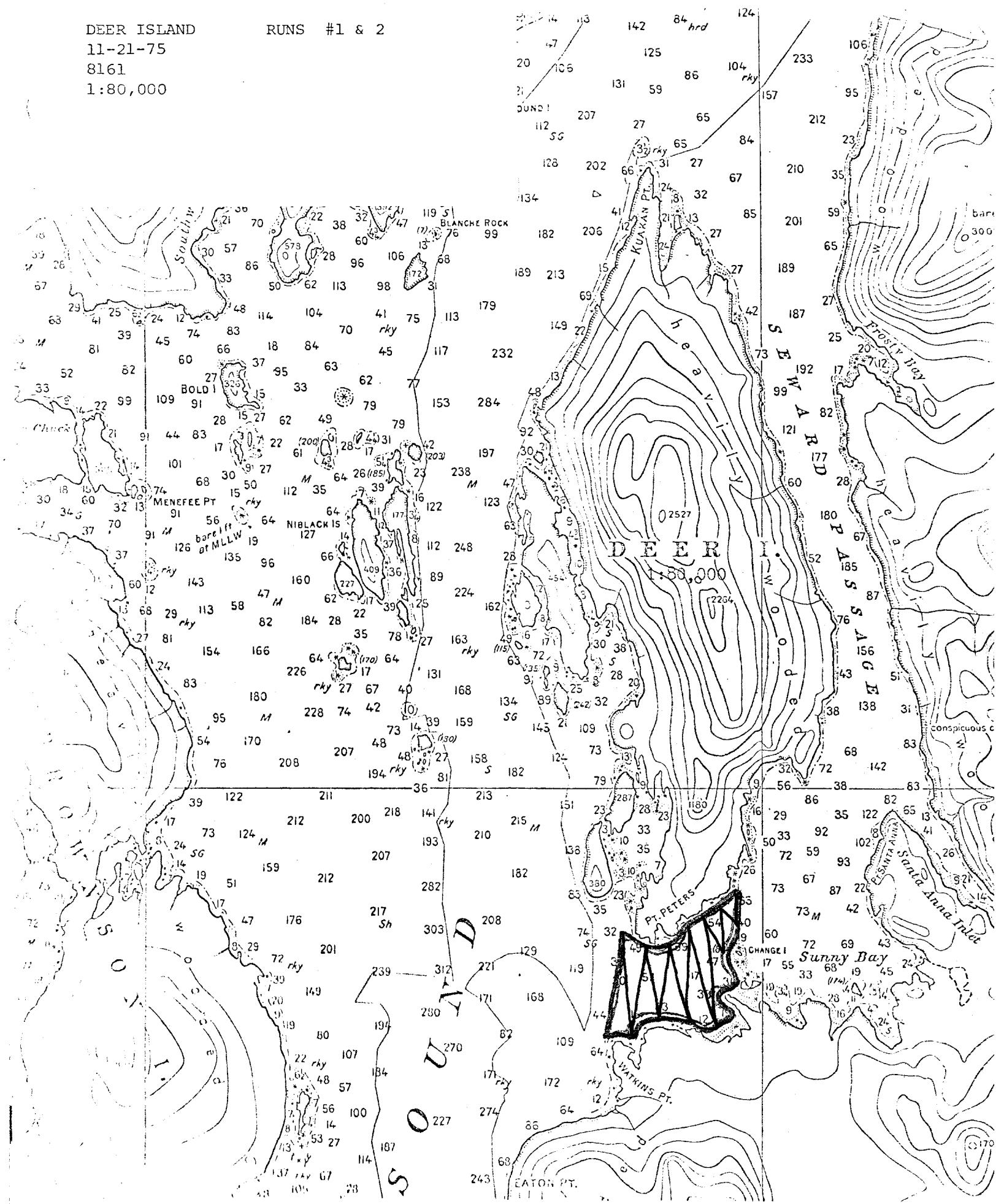
CALIBRATION TONE AFTER SURVEY:		GAIN	8	START	0736	STOP	0717
		GAIN	5	START	0717	STOP	0697
		GAIN		START		STOP	
		GAIN		START		STOP	

COMMENTS:

Herring distributed at 15 to 30 fathoms in one continuous school.

DEER ISLAND  
11-21-75  
8161  
1:80,000

RUNS #1 & 2



AREA SURVEYED DEER ISLAND RUN # 1 VESSEL SUNDANCE DATE 12-18-75  
 OPERATOR Blankenbeckler WEATHER CONDITIONS Calm, rain.  
 TIDAL INFORMATION : High level 17.0 Time 1306 hours SURFACE TEMP.  
 Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_  
 SYNC PULSE  TVG GAIN \_\_\_\_\_ 50 ms \_\_\_\_\_ 100 ms \_\_\_\_\_ 200 ms \_\_\_\_\_  
 DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_  
 TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
 CHECK OSC AGAINST ROSS DEPTH

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	5
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED					

GENERAL INFORMATION:	TAPE INDEX:	START	0000	STOP	0029
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CALIBRATION TONE PRIOR TO SURVEY:	GAIN	8	START	0029	STOP	0070
	GAIN	5	START	0070	STOP	0108
	GAIN		START		STOP	

TAPING GAIN	5	REEL NO.	START	0108	TAPE	1050	STOP	0359
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	
TAPING GAIN		REEL NO.	START		R.TAPE		STOP	

START RUN #	1	START	1155	STOP	1314	TOTAL	79 minutes
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	

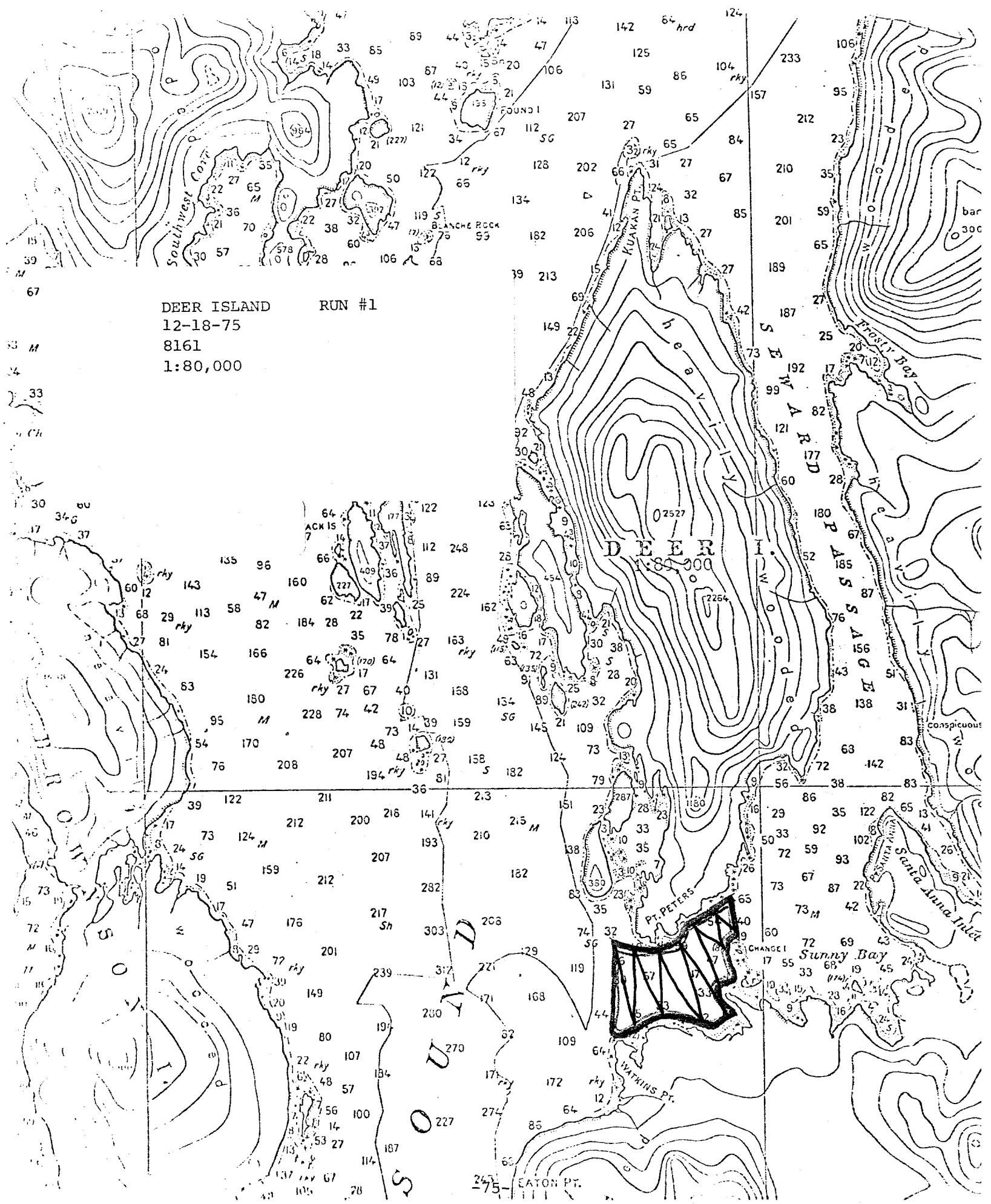
CALIBRATION TONE AFTER SURVEY:	GAIN	5	START	0359	STOP	0333
	GAIN	8	START	0333	STOP	0306
	GAIN		START		STOP	
	GAIN		START		STOP	

COMMENTS:

School distributed 20-40 fathoms.

DEER ISLAND  
12-18-75  
8161  
1:80,000

RUN #1



AREA SURVEYED DEER ISLAND RUN # 2 & 3 VESSEL SUNDANCE DATE 12-18-75  
 OPERATOR Blankenbeckler WEATHER CONDITIONS Rain, calm  
 TIDAL INFORMATION : High level 17.0 Time 1306 hours SURFACE TEMP.  
 Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_  
 SYNC PULSE  TVG GAIN 50 ms 100 ms 200 ms  
 DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING 500 mv.  
 TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
 CHECK OSC AGAINST ROSS DEPTH

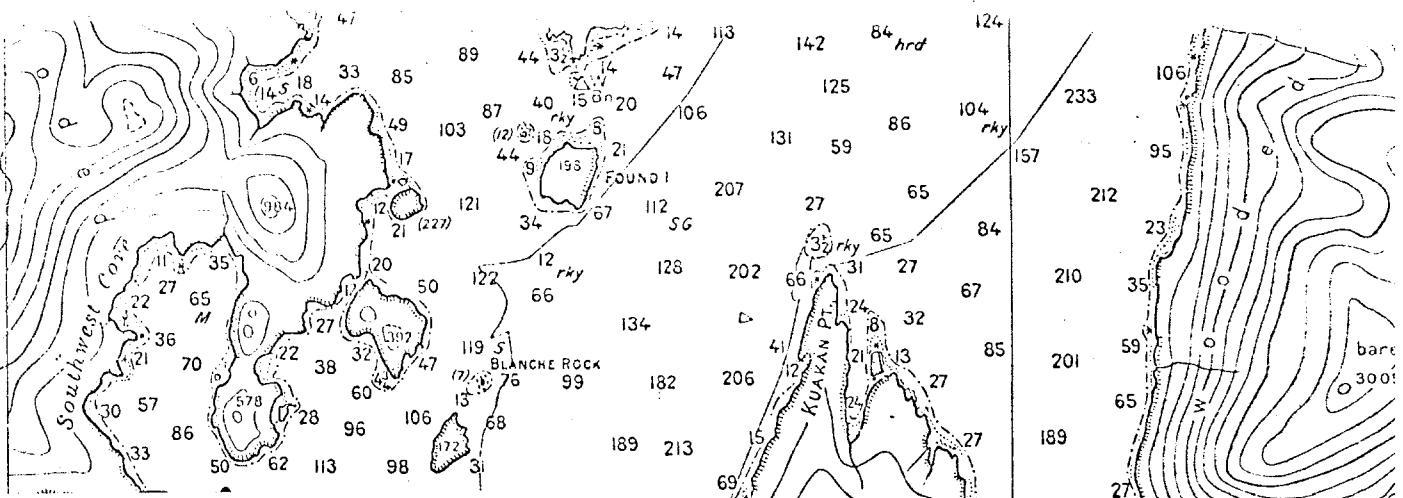
TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	5
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED	6 knots @ 1300 rpm				

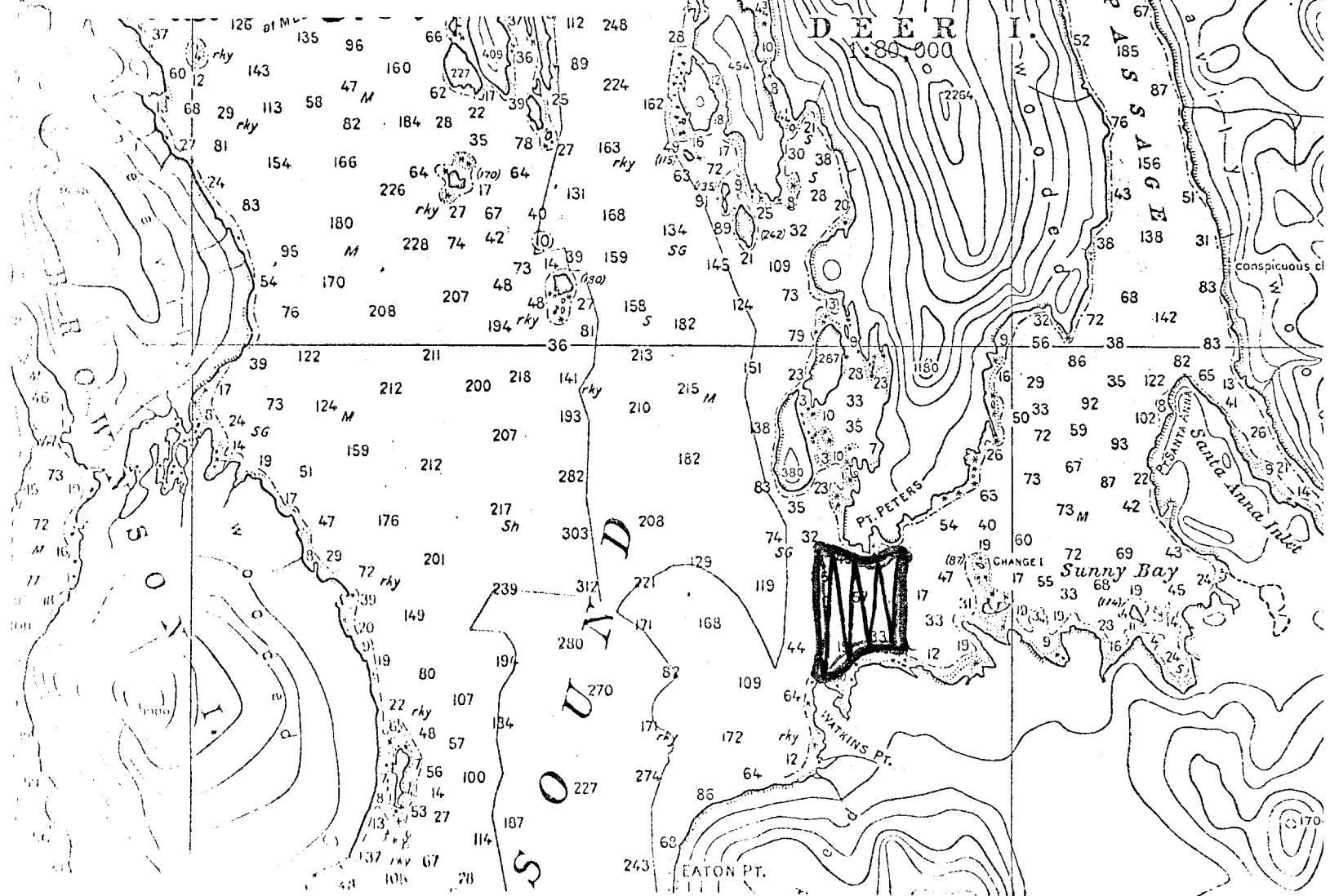
GENERAL INFORMATION:		TAPE INDEX:	START	0000	STOP	0027			
CALIBRATION TONE PRIOR TO SURVEY:		GAIN	8	START	0027	STOP	0067		
		GAIN	5	START	0067	STOP	0107		
		GAIN		START		STOP			
		RUN		REVERSE					
TAPING GAIN	5	REEL NO.	2	START	0112	TAPE	1050	STOP	1110
TAPING GAIN		REEL NO.	3	START	1110	R.TAPE		STOP	0145
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
TAPING GAIN		REEL NO.		START		R.TAPE		STOP	
		START RUN #	2	START	1355	STOP	1445	TOTAL	50 minutes
		#	3	START	1445	STOP	1525	TOTAL	40 minutes
		#		START		STOP		TOTAL	
		#		START		STOP		TOTAL	
CALIBRATION TONE AFTER SURVEY:		GAIN	5	START	0145	STOP	0112		
		GAIN	8	START	0112	STOP	0073		
		GAIN		START		STOP			
		GAIN		START		STOP			

COMMENTS:

Area will be smaller than Run #1 and will be transected twice. Gulls in area, also sea lions (1 pod).



DEER ISLAND RUNS #2 & 3  
12-18-75  
8161  
1:80,000



AREA SURVEYED ANITA BAY RUN # 1 VESSEL AUKLET DATE 10-10-75  
 OPERATOR Blankenbeckler & Copeland WEATHER CONDITIONS Clear & cool  
 TIDAL INFORMATION : High level \_\_\_\_\_ Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_  
 Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_  
 SYNC PULSE  TVG GAIN 50 ms 100 ms 200 ms  
 DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_  
 TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
 CHECK OSC AGAINST ROSS DEPTH

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	5
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED					

GENERAL INFORMATION:	TAPE INDEX:	START	0104	STOP	1265
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CALIBRATION TONE PRIOR TO SURVEY:	GAIN	8	START	0019	STOP	0063
	GAIN	5	START	0063	STOP	0104
	GAIN		START		STOP	
				REVERSE		

TAPING GAIN	REEL NO.	START	0104	TAPE	STOP	1365
TAPING GAIN	REEL NO.	START		R.TAPE	STOP	
TAPING GAIN	REEL NO.	START		R.TAPE	STOP	
TAPING GAIN	REEL NO.	START		R.TAPE	STOP	
TAPING GAIN	REEL NO.	START		R.TAPE	STOP	

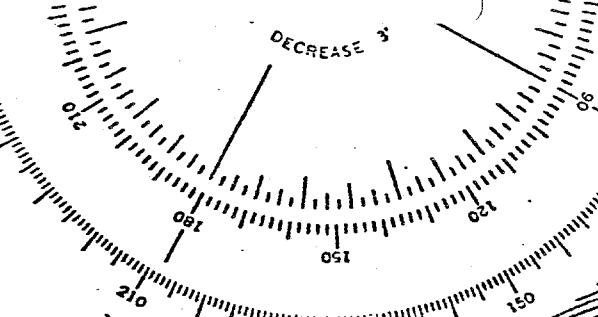
START RUN #	1	START	1831	STOP	1931	TOTAL	60 minutes
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY:	GAIN	5	START	1365	STOP	1347
	GAIN	8	START	1347	STOP	1329
	GAIN		START		STOP	
	GAIN		START		STOP	

COMMENTS:

Herring in one large school covering majority of survey area. Distribution from 25 to 40 fathoms. Seiner MISS SUSAN made a set documenting school as herring.

ANITA BAY RUN #1  
10-10-75  
8160  
1:80,000



DECREASE

N

S

A

Anita

Bare peaks

6 M

29' 50" 40" 39" 20" 132° 28' 50"

2370

3220

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42

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78

42

41

27

TURN

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26

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AREA SURVEYED ANITA BAY RUN # 2 VESSEL KITTIWAKE DATE 11-22-75  
 OPERATOR Blankenbeckler & Copeland WEATHER CONDITIONS Clear and calm.  
 TIDAL INFORMATION : High level 17.2' Time 1538 hours SURFACE TEMP.  
 Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_  
 SYNC PULSE  TVG GAIN 50 ms 100 ms 200 ms  
 DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_  
 TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK   
 CHECK OSC AGAINST ROSS DEPTH

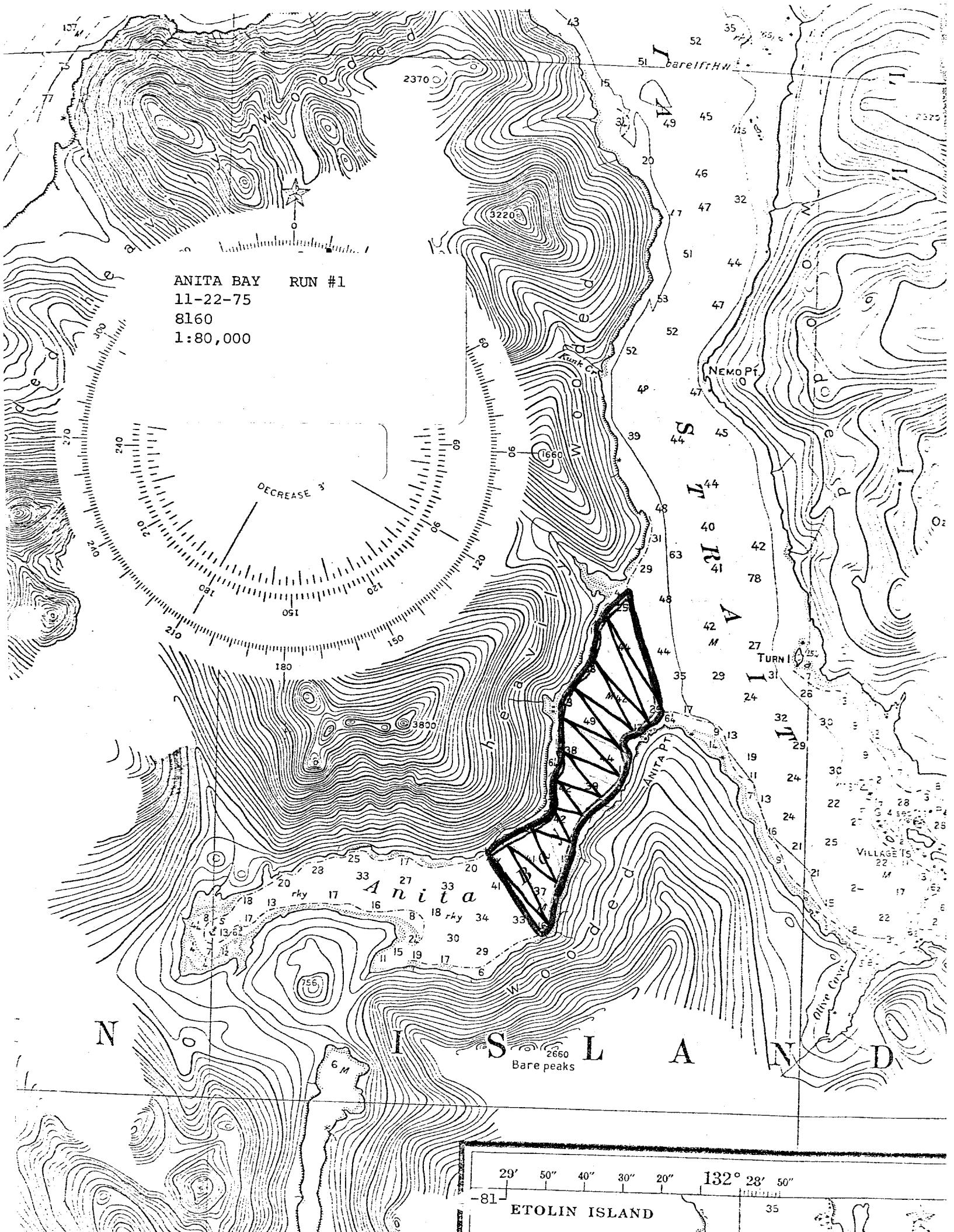
TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	5
ATTENUATION	-12db	TAPE SPEED	7 $\frac{1}{2}$	BRAND TAPE	Scotch 209
VESSEL SPEED	10 knots constant				

GENERAL INFORMATION:	TAPE INDEX:	START	0000	STOP	0022
CALIBRATION TONE PRIOR TO SURVEY:	GAIN 8	START	0022	STOP	0062
	GAIN 5	START	0062	STOP	0101
	GAIN	START		STOP	
			REVERSE		
TAPING GAIN	REEL NO.	START	0101	TAPE	1051
TAPING GAIN	REEL NO.	START	1051	R.TAPE	
TAPING GAIN	REEL NO.	START		R.TAPE	
TAPING GAIN	REEL NO.	START		R.TAPE	
TAPING GAIN	REEL NO.	START		R.TAPE	
START RUN #	2	START	1526	STOP	1648
#		START		STOP	
#		START		STOP	
#		START		STOP	
CALIBRATION TONE AFTER SURVEY:	GAIN 5	START	0369	STOP	0342
	GAIN 8	START	0342	STOP	0313
	GAIN	START		STOP	
	GAIN	START		STOP	

COMMENTS:

Herring coming off bottom at 1526. School large and spread even just off the bottom for the entire survey area.



APPENDIX TABLE 1 Continued

## ACOUSTICAL SURVEY

AREA SURVEYED ANITA BAY RUN # 1 VESSEL KITTIWAKE DATE 11-22-75

OPERATOR Blankenbeckler & WEATHER CONDITIONS Clear and calm.  
Copeland

TIDAL INFORMATION : High level 17.2' Time 1538 hours SURFACE TEMP

Low level 3.4' Time 0941 hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE . . . . . TRANSMIT PULSE

SYNC PULSE / TVG GAIN 50 ms 100 ms 200 ms

DIAL & SETTINGS CORRECT POSITION / CALIBRATION OSC. SETTING

TEAC CALIBRATED // LEFT VOICE CHANNEL CHECK //

CHECK OSC AGAINST ROSS DEPTH

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**TAPE DATA:**

PULSE LENGTH Long PAPER SPEED 4 GAIN SETTINGS 5  
ATTENUATION -12db TAPE SPEED 7½ BRAND TAPE Scotch 209  
VESSEL SPEED

**GENERAL INFORMATION:**      **TAPE INDEX:**      **START**      0000      **STOP**      0021

CALIBRATION TONE PRIOR TO SURVEY: GAIN 8 START 0021 STOP 0062  
GAIN 5 START 0062 STOP 0101  
GAIN START STOP

TAPING GAIN REEL NO. START 0102 REVERSE TAPE 1055 STOP 0520

TAPING GAIN REEL NO. START R.TAPE STOP

TAPING GAIN REEL NO. START R. TAPE STOP

TAPING GAIN REEL NO. START R. TAPE STOP

TAPING GAIN REEL NO. START R.TAPE STOP

START	RUN	#	1	START	1402	STOP	1517	TOTAL	75 minutes
#				START		STOP		TOTAL	
#				START		STOP		TOTAL	
#				START		STOP		TOTAL	

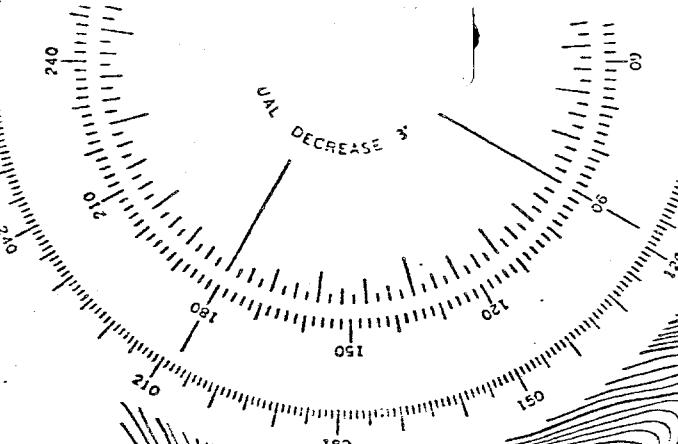
CALIBRATION TONE AFTER SURVEY: GAIN 5 START 0520 STOP 0497  
GAIN 8 START 0497 STOP 0474  
GAIN START STOP  
GAIN START STOP

COMMENTS:

Gulls in the area (5 trollers working area). School large and spread out just off the bottom for entire survey. Herring distributed just off the bottom during daylight. Distributed 35 to 45 fathom depth.

ANITA BAY RUNS 1 & 2  
11-22-75  
8160  
1:80,000

DECREASE S



N

S L  
Bare peaks

A

29° 50' 40' 30' 20'  
132° 28' 50'  
EASTING

APPENDIX TABLE 1 Continued

## ACOUSTICAL SURVEY

AREA SURVEYED ANITA BAY RUN # 1 VESSEL SUNDANCE DATE 12-17-75

OPERATOR Blankenbeckler WEATHER CONDITIONS Light rain, calm.

TIDAL INFORMATION : High level Time hours SURFACE TEMP.

Low level              Time              hours

**EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:**

SYNC PULSE / TVG GAIN 50 ms 100 ms 200 ms

DIAL & SETTINGS CORRECT POSITION // CALIBRATION OSC. SETTING 500 mv.

TEAC CALIBRATED // LEFT VOICE CHANNEL CHECK //

CHECK OSC AGAINST ROSS DEPTH //

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**TAPE DATA:**

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PULSE LENGTH Long PAPER SPEED 4 GAIN SETTINGS 5  
ATTENUATION -12db TAPE SPEED 7½ BRAND TAPE Scotch 209  
VESSEL SPEED

GENERAL INFORMATION: TAPE INDEX: START 0000 STOP 0023

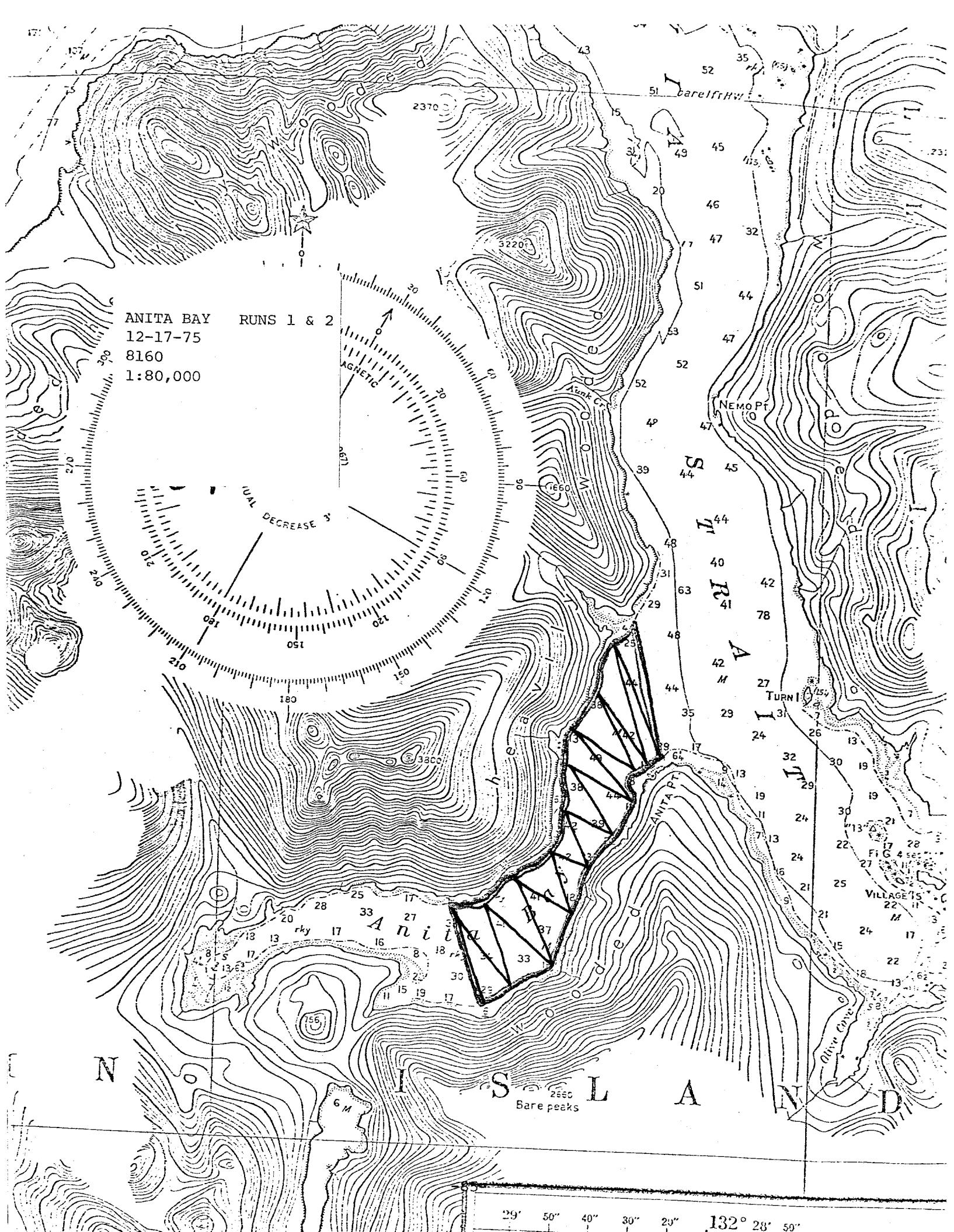
CALIBRATION TONE PRIOR TO SURVEY: GAIN 8 START 0023 STOP 0060  
GAIN 5 START 0060 STOP 0096  
GAIN START STOP

REVERSE  
TAPING GAIN 5 REEL NO. START 0099 TAPE 1048 STOP 0506  
TAPING GAIN REEL NO. START R.TAPE STOP  
TAPING GAIN REEL NO. START R.TAPE STOP  
TAPING GAIN REEL NO. START R.TAPE STOP  
TAPING GAIN REEL NO. START R.TAPE STOP

START	RUN #	1	START	1400	STOP	1520	TOTAL	80 minutes
		#	START		STOP		TOTAL	
		#	START		STOP		TOTAL	
		#	START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY: GAIN 5 START 0506 STOP 0484  
GAIN 8 START 0484 STOP 0461  
GAIN \_\_\_\_\_ START \_\_\_\_\_ STOP \_\_\_\_\_  
GAIN \_\_\_\_\_ START \_\_\_\_\_ STOP \_\_\_\_\_

COMMENTS: Fish were in smaller denser schools than previous estimates. Some gulls present no other predators. Herring near the surface in daylight hours and seem to be moving fast. Schools were shown to saturate on Osc, but I was unable to locate schools on second run at a lower gain setting. SUNDANCE's acoustical equip. seems more sensitive at gain setting than similar settings on other vessels. Herring in numerous dense piling type schools distributed at 8 to 20 fathoms. SUNDANCE TVG wrong - unable to analyze by computer.



AREA SURVEYED ANITA BAY RUN # 2 VESSEL SUNDANCE DATE 12-17-75OPERATOR Blankenbeckler WEATHER CONDITIONS \_\_\_\_\_TIDAL INFORMATION : High level \_\_\_\_\_ Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_  
Low level \_\_\_\_\_ Time \_\_\_\_\_ hoursEQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_

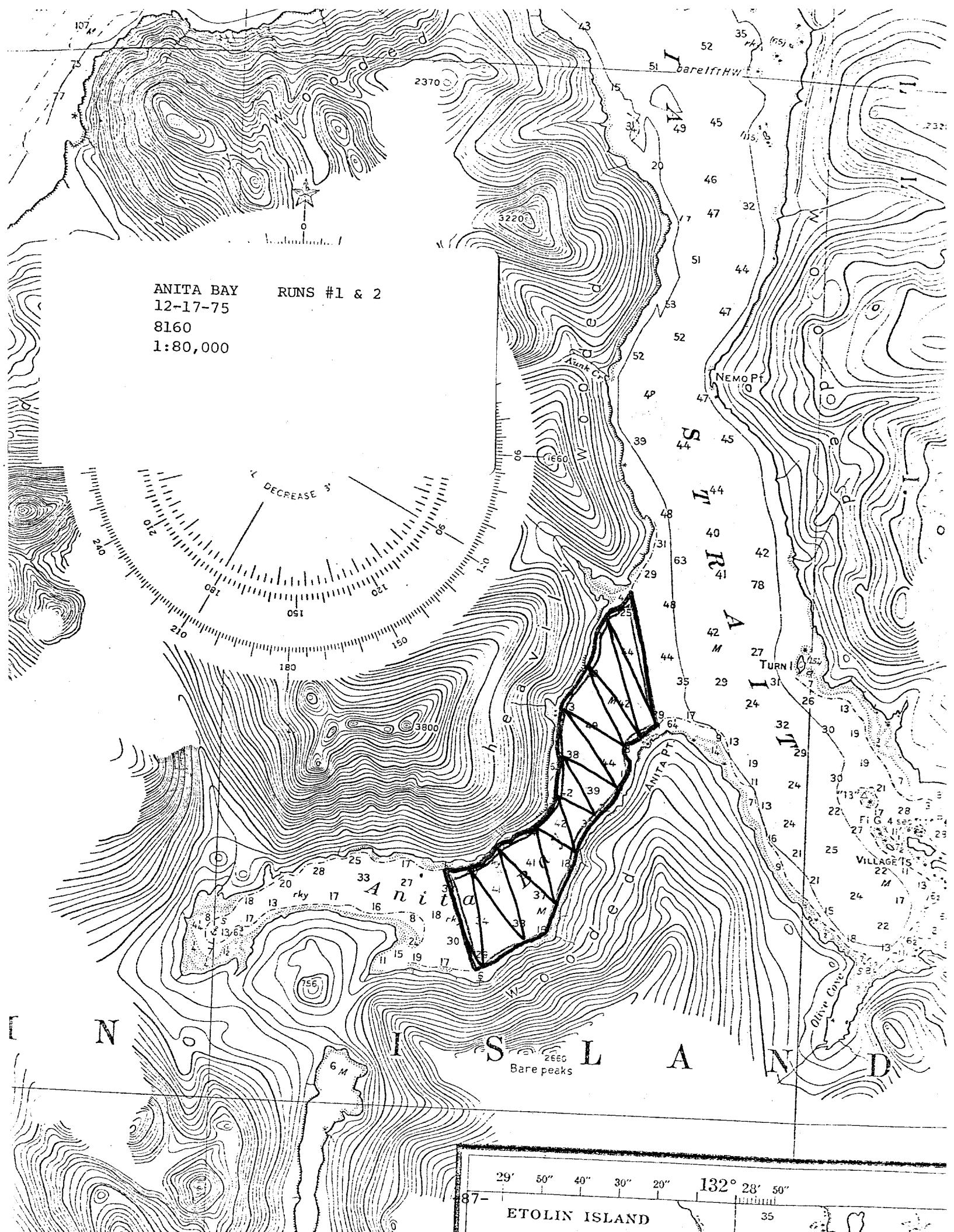
SYNC PULSE  TVG GAIN \_\_\_\_\_ 50 ms \_\_\_\_\_ 100 ms \_\_\_\_\_ 200 ms \_\_\_\_\_DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK CHECK OSC AGAINST ROSS DEPTH TAPE DATA:PULSE LENGTH Long PAPER SPEED 4 GAIN SETTINGS 4  
ATTENUATION -12db TAPE SPEED 7½ BRAND TAPE Scotch 209  
VESSEL SPEED \_\_\_\_\_GENERAL INFORMATION: TAPE INDEX: START 0000 STOP 0018CALIBRATION TONE PRIOR TO SURVEY: GAIN 8 START 0018 STOP 0057  
GAIN 4 START 0057 STOP 0094  
GAIN 5 START 0094 STOP 0128

REVERSE

TAPING GAIN 4 REEL NO. START 0128 TAPE 1025 STOP 0347  
TAPING GAIN REEL NO. START R.TAPE STOP  
TAPING GAIN REEL NO. START R.TAPE STOP  
TAPING GAIN REEL NO. START R.TAPE STOP  
TAPING GAIN REEL NO. START R.TAPE STOPSTART RUN # 2 START 1534 STOP 1655 TOTAL 81 minutes  
# START STOP TOTAL  
# START STOP TOTAL  
# START STOP TOTALCALIBRATION TONE AFTER SURVEY: GAIN 4 START 0347 STOP 0313  
GAIN 5 START 0313 STOP 0289  
GAIN 8 START 0289 STOP --  
GAIN START STOPCOMMENTS:

Fish moving and fairly shallow. Dark at end of run. Depth change shown between 0800 &amp; 0900 was momentary loss of power - circuit breaker. Small dense piling type schools distributed 5 to 15 fathoms.

ANITA BAY RUNS #1 & 2  
12-17-75  
8160  
1:80,000



AREA SURVEYED AUKE BAY RUN # 1 VESSEL KITTIWAKE DATE 2-5-76  
 OPERATOR Staska, Cantillon WEATHER CONDITIONS Calm, bright haze, no wind.  
 TIDAL INFORMATION : High level X Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_  
 Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_  
 SYNC PULSE / TVG GAIN 50 ms 100 ms 200 ms  
 DIAL & SETTINGS CORRECT POSITION / CALIBRATION OSC. SETTING \_\_\_\_\_  
 TEAC CALIBRATED / LEFT VOICE CHANNEL CHECK /  
 CHECK OSC AGAINST ROSS DEPTH /

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	7.7
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED					

GENERAL INFORMATION:	TAPE INDEX:	START	0002	STOP	0022
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CALIBRATION TONE PRIOR TO SURVEY:		GAIN	7.7	START	0022	STOP	0068
		GAIN	4	START	0068	STOP	0119
		GAIN		START	0119	STOP	0158
REVERSE							

TAPING GAIN	REEL NO.	START	TAPE	STOP
TAPING GAIN	REEL NO.	START	R.TAPE	STOP
TAPING GAIN	REEL NO.	START	R.TAPE	STOP
TAPING GAIN	REEL NO.	START	R.TAPE	STOP
TAPING GAIN	REEL NO.	START	R.TAPE	STOP

START RUN #	1	START	1721	STOP	1840	TOTAL	79 minutes
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	

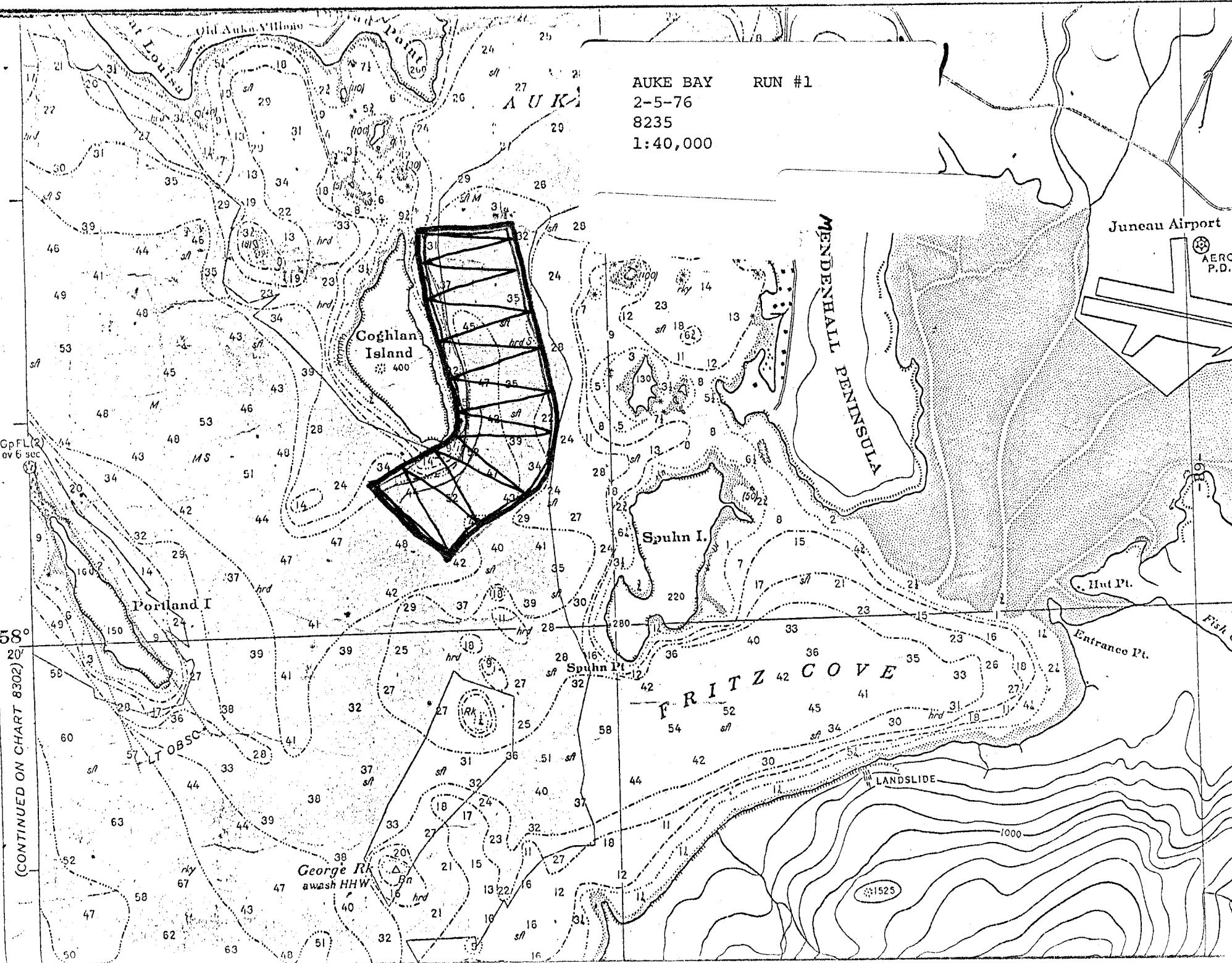
CALIBRATION TONE AFTER SURVEY:		GAIN	4	START	0090	STOP	0001
		GAIN		START		STOP	
		GAIN		START		STOP	
		GAIN		START		STOP	

COMMENTS:

Herring in tight flat school off the bottom distributed at 25-35 fathoms.

CONTINUED ON CHART 8302) 2/80

AUKE BAY RUN #1  
2-5-76  
8235  
1:40,000



AREA SURVEYED FRITZ COVE RUN # 1 VESSEL JOHN COBB DATE 1-22-76

OPERATOR NMFS - Auke Bay Lab WEATHER CONDITIONS Rain, snow, overcast

TIDAL INFORMATION : High level \_\_\_\_\_ Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_

Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_

SYNC PULSE  TVG GAIN \_\_\_\_\_ 50 ms \_\_\_\_\_ 100 ms \_\_\_\_\_ 200 ms \_\_\_\_\_

DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_

TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK

CHECK OSC AGAINST ROSS DEPTH

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	7.1, 5, 4
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED	7.5 knots @ 260 rpm				

GENERAL INFORMATION: TAPE INDEX: START \_\_\_\_\_ STOP \_\_\_\_\_

CALIBRATION TONE PRIOR TO SURVEY:		GAIN	1)	START	0000	STOP	0200
		GAIN		START		STOP	
		GAIN		START		STOP	
REVERSE							

TAPING GAIN	1)	REEL NO.	START	0200	TAPE	STOP
TAPING GAIN		REEL NO.	START		R.TAPE	STOP
TAPING GAIN		REEL NO.	START		R.TAPE	STOP
TAPING GAIN		REEL NO.	START		R.TAPE	STOP
TAPING GAIN		REEL NO.	START		R.TAPE	STOP

START	RUN #	1	START	1506	STOP	1610	TOTAL	64 minutes
#			START		STOP		TOTAL	
#			START		STOP		TOTAL	
#			START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY:		GAIN		START		STOP
		GAIN		START		STOP
		GAIN		START		STOP
		GAIN		START		STOP

COMMENTS:

Calibration signals put on tape at the completion of each transect.

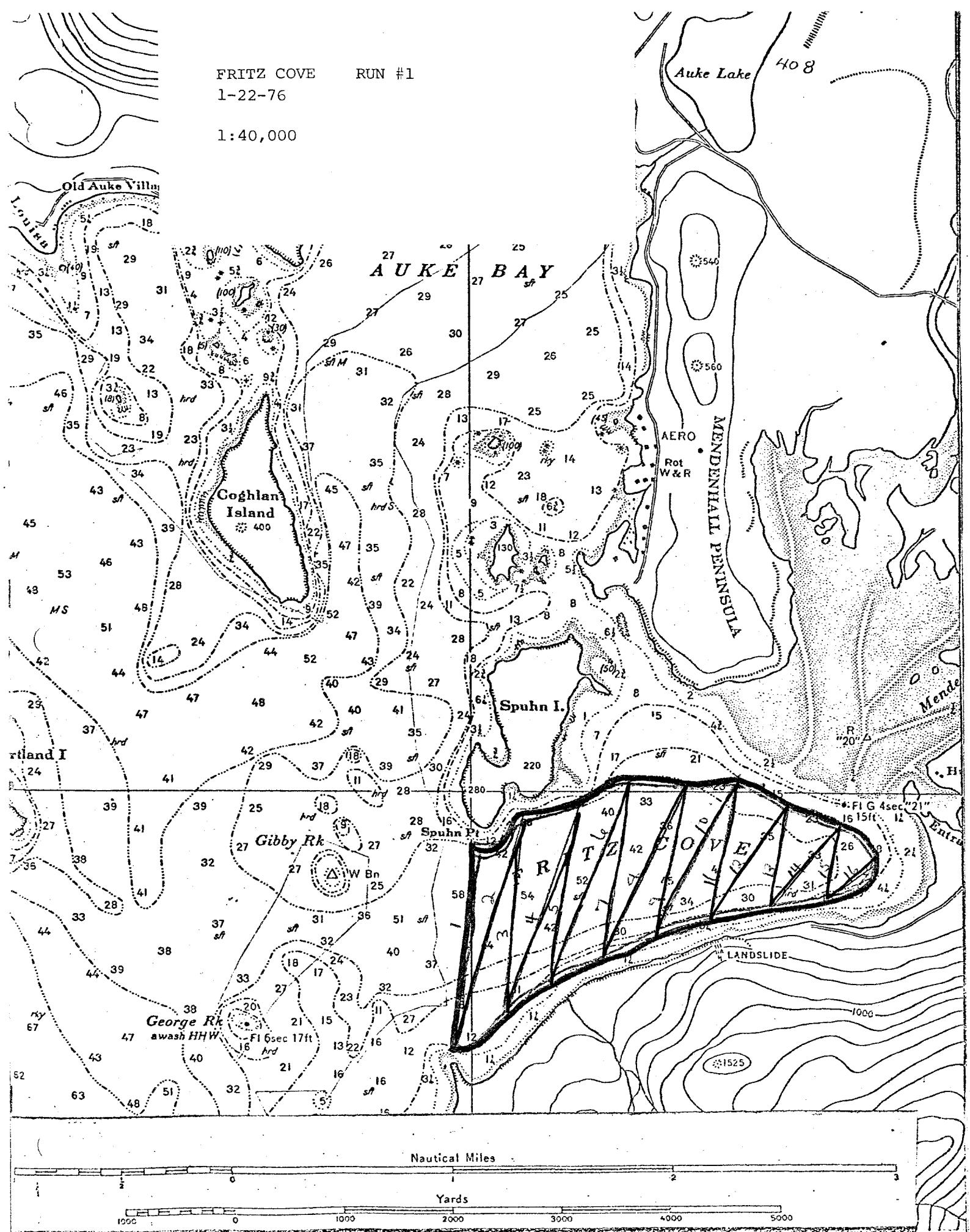
1) Calibration signals at -12db and at gain 7.1, -20db and gain of 7.11, -12db and gain c 6.00, -12db and 5.00 and -12db and gain of 4.00 at start of tape #1. THIS NOTED ON TAPE START SURVEY ODOMETER READING 200.

FRITZ COVE

RUN #1

1-22-76

1:40,000



AREA SURVEYED FRITZ COVE RUN # 2 VESSEL JOHN COBB DATE 1-22-76

OPERATOR NMFS - Auke Bay Lab. WEATHER CONDITIONS Rain, snow, overcast.

TIDAL INFORMATION : High level \_\_\_\_\_ Time \_\_\_\_\_ hours SURFACE TEMP. \_\_\_\_\_  
Low level \_\_\_\_\_ Time \_\_\_\_\_ hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE \_\_\_\_\_ TRANSMIT PULSE \_\_\_\_\_

SYNC PULSE  TVG GAIN 50 ms 100 ms 200 ms

DIAL & SETTINGS CORRECT POSITION  CALIBRATION OSC. SETTING \_\_\_\_\_

TEAC CALIBRATED  LEFT VOICE CHANNEL CHECK

CHECK OSC AGAINST ROSS DEPTH

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	4.0
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	Scotch 209
VESSEL SPEED	7.5 knots @ 260 rpm				

GENERAL INFORMATION: TAPE INDEX: START \_\_\_\_\_ STOP \_\_\_\_\_

CALIBRATION TONE PRIOR TO SURVEY:	GAIN	1)	START	0000	STOP	0150
	GAIN		START		STOP	
	GAIN		START		STOP	

REVERSE

TAPING GAIN	REEL NO.	START	TAPE	STOP
TAPING GAIN	REEL NO.	START	R.TAPE	STOP
TAPING GAIN	REEL NO.	START	R.TAPE	STOP
TAPING GAIN	REEL NO.	START	R.TAPE	STOP
TAPING GAIN	REEL NO.	START	R.TAPE	STOP

START RUN #	2	START	1642	STOP	1737	TOTAL	55 min,
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	
#		START		STOP		TOTAL	

CALIBRATION TONE AFTER SURVEY:	GAIN	START	STOP
	GAIN	START	STOP
	GAIN	START	STOP
	GAIN	START	STOP

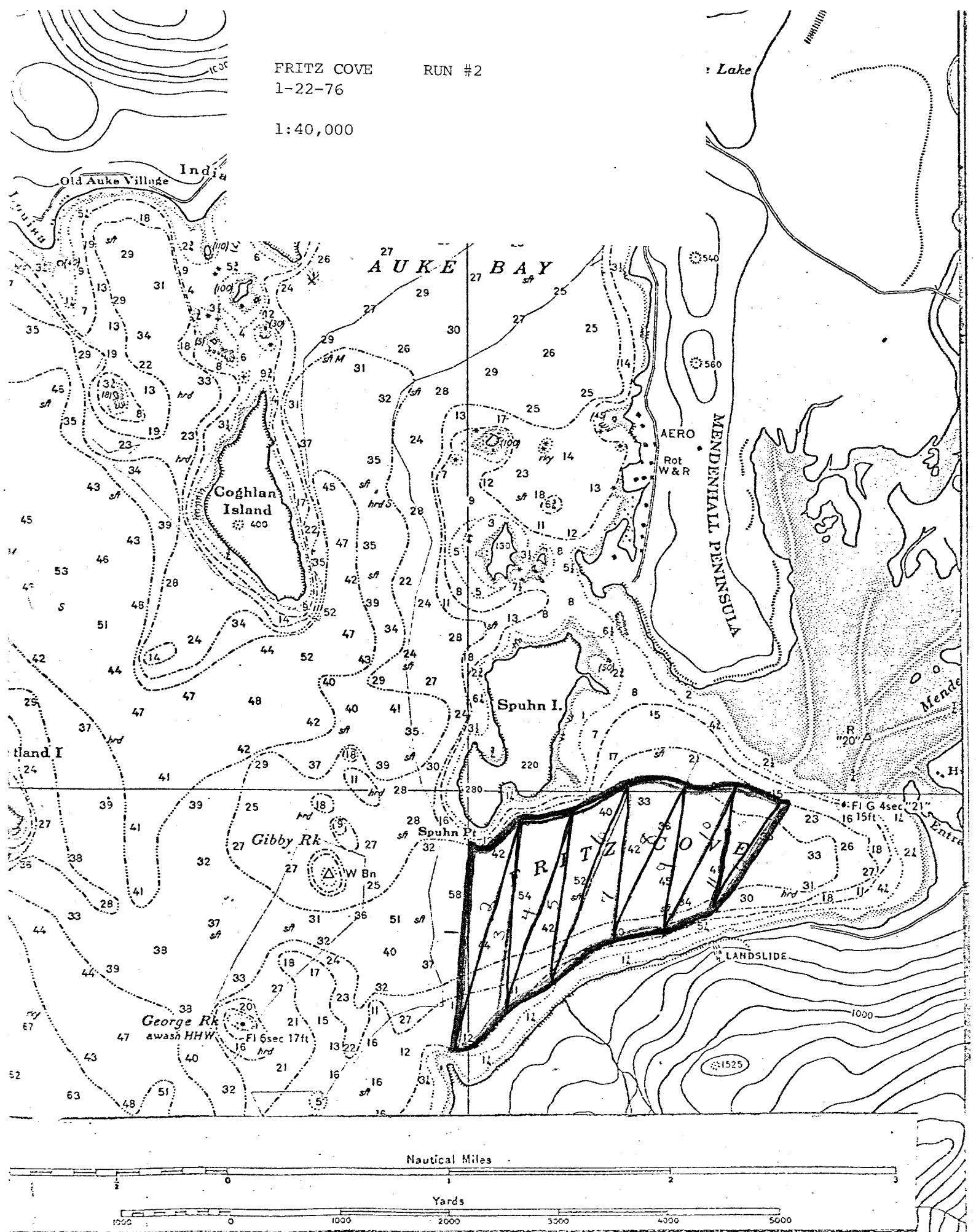
COMMENTS:

- 1) Calibration signals at beginning of tape at gain of 4 and at 0, -6 and -12db.  
 Calibration signal also at end of each transect.  
 Herring in flat scattered school distributed from 30 to 50 fathoms.

FRITZ COVE  
1-22-76

RUN #2

1:40,000



AREA SURVEYED FAVORITE CHANNEL RUN # 1 VESSEL MURRE II DATE 4-14-76

OPERATOR NMFS WEATHER CONDITIONS Sunny - partly cloudy.

TIDAL INFORMATION : High level Time hours SURFACE TEMP. \_\_\_\_\_  
Low level Time hours

EQUIPMENT CHECKS PRIOR TO RUNNING ASSESSMENT SURVEY:

INPUT VOLTAGE TRANSMIT PULSE 230 vpp

SYNC PULSE / TVG GAIN 50 ms 100 ms 200 ms

DIAL & SETTINGS CORRECT POSITION / CALIBRATION OSC. SETTING 500 mv.

TEAC CALIBRATED / LEFT VOICE CHANNEL CHECK /

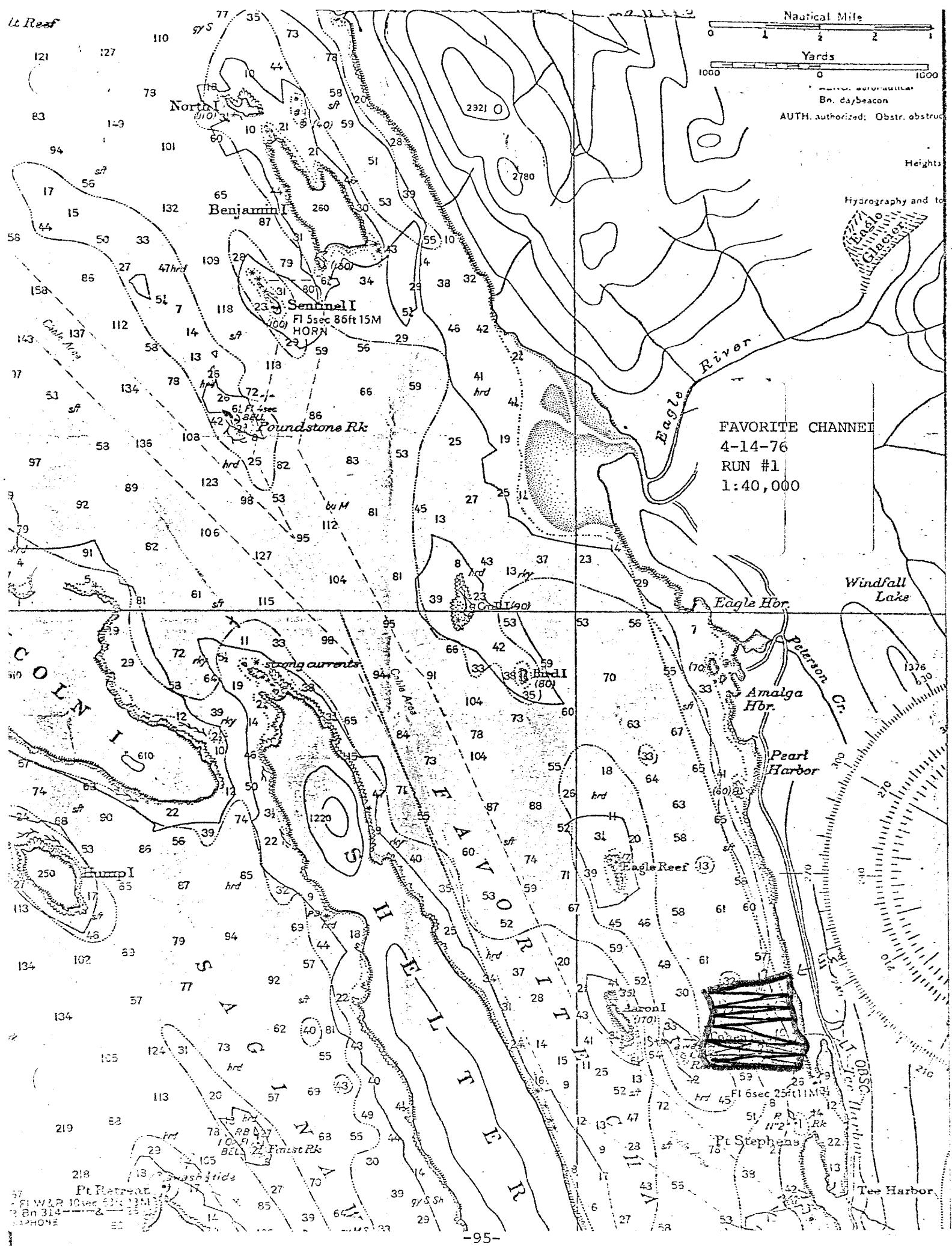
CHECK OSC AGAINST ROSS DEPTH /

TAPE DATA:

PULSE LENGTH	Long	PAPER SPEED	4	GAIN SETTINGS	_____
ATTENUATION	-12db	TAPE SPEED	7½	BRAND TAPE	_____
VESSEL SPEED	600 rpm constant				

<u>GENERAL INFORMATION:</u>		<u>TAPE INDEX:</u>	<u>START</u>	<u>0000</u>	<u>STOP</u>	<u>0040</u>
<u>CALIBRATION TONE PRIOR TO SURVEY:</u>		GAIN 3.65	START	0040	STOP	0084
		GAIN 4.65	START	0437	STOP	0457
		GAIN 4.65	START	1008	STOP	1025
see				REVERSE		
TAPING GAIN	comments	REEL NO.	START	0040	TAPE	---
TAPING GAIN		REEL NO.	START		R.TAPE	STOP
TAPING GAIN		REEL NO.	START		R.TAPE	STOP
TAPING GAIN		REEL NO.	START		R.TAPE	STOP
TAPING GAIN		REEL NO.	START		R.TAPE	STOP
START RUN #	1	START	1825	STOP	2021	TOTAL 116 minutes
#		START		STOP		TOTAL
#		START		STOP		TOTAL
#		START		STOP		TOTAL
<u>CALIBRATION TONE AFTER SURVEY:</u>		GAIN 3.65	START	0146	STOP	0102
		GAIN 3.65	START	0013	STOP	0062
		GAIN 3.65	START	0993	STOP	1013
		GAIN	START		STOP	

COMMENTS: At the beginning of the tape (0040) a calibration tone at a gain of 3.65 was taped. We wanted a 4.65 calibration tone and this was taped at (0437) before herring were encountered. Herring distributed in large dense schools 25 to 50 fathoms.



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